DataVal, Inc.

MEMORANDUM

TO: Carl Brickner
Environmental Scientist
USEPA Region 9 Quality Assurance Office (PMD-3)

FROM: Donna Breaux DB 10/2/06
Senior Reviewer, DataVal, Inc.

DATE: October 2, 2006

SUBJECT: Review of Analytical Data

Attached are comments resulting from DataVal's review of the following analytical data:

SITE:	Omega Chemical OU-2 March 2006 Sampling
SITE ACCOUNT NO.:	09 BC LA 02
CERCLIS ID NO.:	CAD042245001
CASE NO.:	R06S31
SDG NO.:	06069D and 06075B
LABORATORY:	Region 9 Laboratory, Richmond, CA
ANALYSIS:	Volatile Organic Compounds and 1,4-Dioxane
SAMPLE NO.:	23 Water Samples (see Case Summary)
COLLECTION DATE:	March 9, 13, 14 and 15, 2006
REVIEWERS:	Lisa Norosky/Agnieszka Jankowski, DataVal, Inc.

If there are any questions, please contact Donna Breaux at (415) 883-2780.

Attachment

TPO: [ ]FYI [X]Attention [ ]Action

SAMPLING ISSUES: [X]Yes [ ]No

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DataVal, Inc.

Data Validation Report

Case No.: R06S31
Site: Omega Chemical OU-2 March 2006 Sampling
Laboratory: Region 9 Laboratory, Richmond, CA
Reviewer: Lisa Norosky/ Agnieszka Jankowski, DataVal, Inc.
Date: October 2, 2006

I. Case Summary

SAMPLE INFORMATION:

Analysis:	Volatile Organic Compounds and 1,4-Dioxane
SOW:	N/A

VOC Samples in SDG 06075B:	OC2-MW23D-W-5-196, OC2-MW23D-W-4-197, OC2-MW15-W-0-198, OC2-MW15-W-1-199, OC2-MW15-W-2-200, OC2-MW13B-W-0-201, OC2-MW13B-W-3-202 and OC2-MW12-W-0-203
Concentration and Matrix:	Low Concentration Water
Collection Date:	March 15, 2006
Sample Receipt Date:	March 16, 2006
Extraction Date:	N/A
Analysis Date:	March 17, 21 and 22, 2006

1,4-Dioxane Samples in SDG 06069D:	OC2-MW11-W-0-176, OC2-MW11-W-1-177, OC2-MW10-W-0-179, OC2-MW3-W-0-180, OC2-MW17B-W-0-181, OC2-MW17C-W-5-183, OC2-MW16A-W-0-184, OC2-MW16B-W-0-185, OC2-MW16C-W-0-188, OC2-MW18A-W-0-189, OC2-MW18A-W-1-190, OC2-MW18B-W-0-192, OC2-MW18C-W-0-193, OC2-MW23B-W-0-194 and OC2-MW23C-W-0-195
Concentration and Matrix:	Low Concentration Water
Collection Date:	March 9, 13 and 14, 2006
Sample Receipt Date:	March 10, 14 and 15, 2006
Extraction Date:	N/A
Analysis Date:	March 15, 16, 17 and 19, 2006

1,4-Dioxane Samples in SDG 06075B:	OC2-MW23D-W-5-196, OC2-MW15-W-0-198, OC2-MW15-W-1-199, OC2-MW13B-W-0-201 and OC2-MW12-W-0-203
Concentration and Matrix:	Low Concentration Water
Collection Date:	March 15, 2006
Sample Receipt Date:	March 16, 2006
Extraction Date:	N/A
Analysis Date:	March 21 and 22, 2006

FIELD QC:

Trip Blanks (TB):	OC2-MW23D-W-4-197
Field Blanks (FB):	OC2-MW15-W-2-200
Equipment Blanks (EB):	OC2-MW13B-W-3-202
Background Samples (BG):	None.
Field Duplicates (D1) for 1,4-dioxane:	OC2-MW11-W-0-176 and OC2-MW11-W-1-177
Field Duplicates (D2) for 1,4-dioxane:	OC2-MW18A-W-0-189 and OC2-MW18A-W-1-190
Field Duplicates (D3) for VOCs:	OC2-MW15-W-0-198 and OC2-MW15-W-1-199

METHOD BLANKS AND ASSOCIATED SAMPLES:

1,4-Dioxane:	B6C0086-BLK1:	OC2-MW11-W-0-176, OC2-MW11-W-1-177, OC2-MW10-W-0-179 and OC2-MW3-W-0-180
	B6C0104-BLK1:	OC2-MW17B-W-0-181, OC2-MW17C-W-5-183, OC2-MW16A-W-0-184 and OC2-MW16B-W-0-185
	B6C0112-BLK1:	OC2-MW16C-W-0-188, OC2-MW18A-W-0-189, OC2-MW18A-W-1-190, OC2-MW18B-W-0-192, OC2-MW18C-W-0-193, OC2-MW23B-W-0-194 and OC2-MW23C-W-0-195
	B6C0128-BLK1:	OC2-MW13B-W-0-201 and OC2-MW12-W-0-203
	B6C0145-BLK1:	OC2-MW23D-W-5-196, OC2-MW15-W-0-198 and OC2-MW15-W-1-199
VOCs:	B6C0114-BLK1:	OC2-MW15-W-0-198
	B6C0116-BLK1:	OC2-MW23D-W-4-197, OC2-MW13B-W-3-202 and OC2-MW12-W-0-203
	B6C0130-BLK1:	OC2-MW23D-W-5-196, OC2-MW15-W-0-198, OC2-MW15-W-1-199 and OC2-MW15-W-2-200
	B6C0148-BLK1:	OC2-MW13B-W-0-201
	Storage Blank REFRIG. BLANK:	OC2-MW23D-W-5-196, OC2-MW23D-W-4-197, OC2-MW15-W-0-198, OC2-MW15-W-1-199, OC2-MW15-W-2-200, OC2-MW13B-W-0-201, OC2-MW13B-W-3-202 and OC2-MW12-W-0-203

TABLES:

1A: Analytical Results with Qualifications
1B: Data Qualifier Definitions for Organic Data Review
1F: Tentatively Identified Compounds

TPO ACTION:

None.

TPO ATTENTION:

Two results are estimated (J) due to calibration problems.

SAMPLING ISSUES:

The detected results for two target analytes and one tentatively identified compound are qualified as nondetected and estimated (U,J) due to contamination in trip blank OC2-MW23D-W-4-197 and equipment blank OC2-MW13B-W-3-202.

ADDITIONAL COMMENTS:

This report was prepared according to the laboratory SOPs (#315 and #354), and the documents "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," October, 1999 and "USEPA Contract Laboratory Program National Functional Guidelines for Low Level Organic Data Review," June, 2001.

The tentatively identified compounds (TICs) found in the samples are reported on the Form 1Fs and in attachments to the case narrative included in this report.

The Quantitation Limit (QL) of 1 ug/L for methyl tertiary-butyl ether (MTBE) was not met by the laboratory. The laboratory reporting limit for this analyte was 2 ug/L.

Quantitation limit standards were analyzed near the beginning of each analytical run. All compounds had recoveries between 50% and 150% in the QL standards, with the exception of dichloromethane at 173% and 162%. The percent recoveries failed high and the samples were non-detect for this compound.

All samples in sample delivery groups (SDG) 06069D and 06075B received full validation. This included re-calculation of all reported results for all samples included in these SDGs. All reported values for all samples were verified as correctly reported by the laboratory.

II. Validation Summary

	VOCs Acceptable/Comment		1,4-Dioxane Acceptable/Comment	
HOLDING TIMES	[YES]	[ ]	[YES]	[ ]
GC/MS TUNE	[YES]	[ ]	[YES]	[ ]
CALIBRATIONS	[NO]	[C]	[YES]	[ ]
FIELD QC	[NO]	[B, E]	[YES]	[ ]
LABORATORY BLANKS	[YES]	[ ]	[YES]	[ ]
SURROGATES	[YES]	[ ]	[YES]	[ ]
LABORATORY CONTROL SPIKE/DUPLICATE	[YES]	[ ]	[YES]	[ ]
MATRIX SPIKE/DUPLICATE	[NO]	[D]	[YES]	[ ]
INTERNAL STANDARDS	[YES]	[ ]	[YES]	[ ]
COMPOUND IDENTIFICATION	[YES]	[ ]	[YES]	[ ]
COMPOUND QUANTITATION	[YES]	[A]	[YES]	[A]
SYSTEM PERFORMANCE	[YES]	[ ]	[YES]	[ ]

III. Validity and Comments

A. The following results, denoted with an "L" qualifier, are estimated and flagged "J" in Table 1A.

- All results below the contract required quantitation limits

Results below the quantitation limits (QLs) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.

B. The following detected results are qualified as nondetected and estimated due to trip blank or equipment blank contamination. The results are flagged "U,J" in Table 1A.

- Ethyl acetate in sample OC2-MW12-W-0-203
- Freon 113 in samples OC2-MW23D-W-5-196, OC2-MW13B-W-0-201 and OC2-MW12-W-0-203
- Tetrachloroethene in sample OC2-MW23D-W-5-196

Ethyl acetate was found in trip blank OC2-MW23D-W-4-197 at a concentration of 3.8 µg/L. Freon 113 and tetrachloroethene were found in equipment blank OC2-MW13B-W-3-202 at concentrations of 0.2 ug/L and 0.2 ug/L, respectively. The results for the samples listed above are considered nondetected and estimated (U,J) and the quantitation limits have been increased according to the blank qualification rules presented below. It

should be noted that the value for ethyl acetate in the trip blank and the associated sample were reported as tentatively identified compounds (TICs) by the laboratory.

No positive results are reported unless the concentration of the compound in the sample exceeds 10 times the amount in any associated blank for the common laboratory contaminants or 5 times the amount for other compounds. If the sample result is greater than the QL, the quantitation limit is raised to the sample result (U,J). If the sample result is less than the QL, the result is reported as nondetected (U,J) at the QL.

A trip blank is laboratory reagent water which is shipped from the laboratory to the field with the empty sample containers and back to the laboratory with the filled sample containers. A trip blank is intended to detect contaminants introduced during the transport of the samples to the laboratory, although any laboratory introduced contamination will also be present. Contaminants that are found in the trip blank which are absent in the laboratory blank could be indicative of a problem in transportation, storage, the bottle preparation procedure, or other indeterminate error.

An equipment blank is clean water that has been collected as a sample using decontaminated sampling equipment. The intent of an equipment blank is to monitor for contamination introduced by the sampling activity, although any laboratory introduced contamination will also be present.

C. The quantitation limits for the following analyte are estimated due to a large percent relative standard deviation (%RSD) in the initial calibration. The results are flagged "J" in Table 1A.

- Naphthalene in sample OC2-MW15-W-0-198 and method blank B6C0114-BLK1

A percent RSD of 37% was observed for naphthalene in the initial calibration performed March 3, 2006. This value exceeds the ≤30.0% QC advisory validation criterion.

The initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of the analytical sequence and of producing a linear calibration curve.

D. The matrix spike and matrix spike duplicate results for dichlorodifluoromethane, chloromethane, vinyl chloride, bromomethane, dichloromethane, 2,2-dichloropropane and styrene in QC samples

OC2-MW23D-W-5-196 MS/MSD did not meet the criteria for accuracy and precision specified in the laboratory SOP. The percent recoveries for dichlorodifluoromethane, chloromethane, vinyl chloride, bromomethane, dichloromethane, 2,2-dichloropropane and styrene are presented below.

OC2-MW23D-W-5-196	**MS**	**MSD**	
Analyte	**%Recovery**	**%Recovery**	**RPD**
Dichlorodifluoromethane	58%	61%	5% (okay)
Chloromethane	65%	67%	2% (okay)
Vinyl chloride	67%	67%	0.3% (okay)
Bromomethane	64%	65%	0.9% (okay)
Dichloromethane	67%	66%	0.9% (okay)
2,2-Dichloropropane	24%	26%	8% (okay)
Styrene	*0%*	*0%*	*0% (okay)*

QC limits:	%Recovery	RPD
	70%-130%	20%

The effect of the low recoveries on the quality of the data is not known.

Matrix spike sample analysis provides information about the effect of the sample matrix on sample preparation and measurement.

E. In the analysis of the field duplicate pairs, the following relative percent differences (RPDs) were obtained for the analytes listed below.

	OC2-MW15-W-0-198	OC2-MW15-W-1-199	
Analyte	Conc., µg/L	Conc., µg/L	RPD
Dichlorodifluoromethane	4.7	2.7	54%
trans-1,2-Dichloroethene	2.5	1.9	27%
cis-1,2-Dichloroethene	*7.5*	*6.1*	*21%*
Trichlorofluoromethane	670	340	65%
1,1-Dichloroethene	2000	1000	67%
Freon 113	1400	910	42%
Chloroform	440	210	71%
Trichloroethene	540	260	70%
Tetrachloroethene	1900	840	77%

The analysis of field duplicate samples is a measure of both field and analytical precision. The imprecision in the results of the analysis of the field duplicate pair may be due to the sample matrix, method defects, or poor sampling or laboratory technique.

ANALYTICAL RESULTS
TABLE 1A

Case Number: R06S31
Site: Omega Chemical OU-2 March 2006 Sampling
SDG: 06075B
Lab: USEPA Region 9 Laboratory
Reviewer: Lisa Norosky, DataVal, Inc.
Date: 2-Oct-06

Analysis: *Volatile Organic Compounds*
Matrix: Water

Station Location	OC2-MW23D-W-5-196				TB				FD1			
Sample ID	OC2-MW23D-W-5-196				OC2-MW23D-W-4-197				OC2-MW15-W-0-198			
Lab Sample ID	0603049-01				0603049-02				0603049-03			
Date of Collection	15-Mar-06				15-Mar-06				15-Mar-06			
Units	ug/L				ug/L				ug/L			
Analyte	Result	Q	Val	Com	Result	Q	Val	Com	Result	Q	Val	Com
Dichlorodifluoromethane	0.5	U		D	0.5	U			4.7			E
Chloromethane	0.5	U		D	0.5	U			0.5	U		
Vinyl chloride	0.5	U		D	0.5	U			0.5	U		
Bromomethane	0.5	U		D	0.5	U			0.5	U		
Chloroethane	0.5	U			0.5	U			0.5	U		
Trichlorofluoromethane	0.5	U			0.5	U			670			E
1,1-Dichloroethene	0.5	U			0.5	U			2000			E
Freon 113	0.2		UJ	B	0.5	U			1400			E
Acetone	4.0	U			4.0	U			4.0	U		
Dichloromethane	0.5	U		D	0.5	U			0.5	U		
trans-1,2-Dichloroethene	0.5	U			0.5	U			2.5			E
Methyl t-butyl ether(MTBE)	2.0	U			2.0	U			5.6			
1,1-Dichloroethane	0.5	U			0.5	U			5.2			
2,2-Dichloropropane	0.5	U		D	0.5	U			0.5	U		
cis-1,2-Dichloroethene	0.5	U			0.5	U			7.5			E
2-Butanone (MEK)	4.0	U			4.0	U			4.0	U		
Bromochloromethane	0.5	U			0.5	U			0.5	U		
Chloroform	0.5	U			0.5	U			440			E
1,1,1-Trichloroethane	0.5	U			0.5	U			2.0			
Carbon tetrachloride	0.5	U			0.5	U			0.2	L	J	A
1,1-Dichloropropene	0.5	U			0.5	U			0.5	U		
Benzene	0.5	U			0.5	U			0.5			
1,2-Dichloroethane	0.5	U			0.5	U			17			
Trichloroethene	0.8				0.5	U			540			E
1,2-Dichloropropane	0.5	U			0.5	U			0.5	U		
Dibromomethane	0.5	U			0.5	U			0.5	U		
Bromodichloromethane	0.5	U			0.5	U			0.5	U		
cis-1,3-Dichloropropene	0.5	U			0.5	U			0.5	U		
Toluene	0.5	U			0.5	U			0.5	U		
trans-1,3-Dichloropropene	0.5	U			0.5	U			0.5	U		
1,1,2-Trichloroethane	0.5	U			0.5	U			0.7			
Tetrachloroethene	0.2		UJ	B	0.5	U			1900			E
1,3-Dichloropropane	0.5	U			0.5	U			0.5	U		
Chlorodibromomethane	0.5	U			0.5	U			0.5	U		
1,2-Dibromoethane (EDB)	0.5	U			0.5	U			0.5	U		
Chlorobenzene	0.5	U			0.5	U			0.5	U		
1,1,1,2-Tetrachloroethane	0.5	U			0.5	U			0.5	U		
Ethylbenzene	0.5	U			0.5	U			0.5	U		
m&p-Xylene	1.0	U			1.0	U			1.0	U		
o-Xylene	0.5	U			0.5	U			0.5	U		
Styrene	0.5	U		D	0.5	U			0.5	U		
Bromoform	0.5	U			0.5	U			0.5	U		
Isopropylbenzene	0.5	U			0.5	U			0.5	U		
Bromobenzene	0.5	U			0.5	U			0.5	U		
1,1,2,2-Tetrachloroethane	0.5	U			0.5	U			0.5	U		
1,2,3-Trichloropropane	0.5	U			0.5	U			0.5	U		
Propylbenzene	0.5	U			0.5	U			0.5	U		
2-Chlorotoluene	0.5	U			0.5	U			0.5	U		
4-Chlorotoluene	0.5	U			0.5	U			0.5	U		
1,3,5-Trimethylbenzene	0.5	U			0.5	U			0.5	U		
tert-Butylbenzene	0.5	U			0.5	U			0.5	U		
1,2,4-Trimethylbenzene	0.5	U			0.5	U			0.5	U		
sec-Butylbenzene	0.5	U			0.5	U			0.5	U		
1,3-Dichlorobenzene	0.5	U			0.5	U			0.5	U		
p-Isopropyltoluene	0.5	U			0.5	U			0.5	U		
1,4-Dichlorobenzene	0.5	U			0.5	U			0.5	U		
1,2-Dichlorobenzene	0.5	U			0.5	U			0.5	U		
Butylbenzene	0.5	U			0.5	U			0.5	U		
1,2-Dibromo-3-chloropropane	2.0	U			2.0	U			2.0	U		
1,2,4-Trichlorobenzene	0.5	U			0.5	U			0.5	U		
Hexachlorobutadiene	0.5	U			0.5	U			0.5	U		
Naphthalene	0.5	U			0.5	U			0.5	U	J	C
1,2,3-Trichlorobenzene	0.5	U			0.5	U			0.5	U		

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
N/A-Not Applicable, NA-Not Analyzed

FD1, FD2, etc.- Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank, TB-Trip Blank
BG-Background Sample

ANALYTICAL RESULTS
TABLE 1A

Case Number: R06S31
Site: Omega Chemical OU-2 March 2006 Sampling
SDG: 06075B
Lab: USEPA Region 9 Laboratory
Reviewer: Lisa Norosky, DataVal, Inc.
Date: 2-Oct-06

Analysis: Volatile Organic Compounds
Matrix: Water

Station Location	FD1				FB				OC2-MW13B-W-0-201			
Sample ID	OC2-MW15-W-1-199				OC2-MW15-W-2-200				OC2-MW13B-W-0-201			
Lab Sample ID	0603049-04				0603049-05				0603049-06			
Date of Collection	15-Mar-06				15-Mar-06				15-Mar-06			
Units	ug/L				ug/L				ug/L			
Analyte	Result	Q	Val	Com	Result	Q	Val	Com	Result	Q	Val	Com
Dichlorodifluoromethane	2.7			E	0.5	U			0.5	U		
Chloromethane	0.5	U			0.5	U			0.5	U		
Vinyl chloride	0.5	U			0.5	U			0.5	U		
Bromomethane	0.5	U			0.5	U			0.5	U		
Chloroethane	0.5	U			0.5	U			0.5	U		
Trichlorofluoromethane	340			E	0.5	U			0.5	U		
1,1-Dichloroethene	1000			E	0.5	U			0.2	L	J	A
Freon 113	910			E	0.5	U			0.2		UJ	B
Acetone	4.0	U			4.0	U			4.0	U		
Dichloromethane	0.5	U			0.5	U			0.5	U		
trans-1,2-Dichloroethene	1.9			E	0.5	U			0.5	U		
Methyl t-butyl ether(MTBE)	6.1				2.0	U			1.3			
1,1-Dichloroethane	4.4				0.5	U			0.5	U		
2,2-Dichloropropane	0.5	U			0.5	U			0.5	U		
cis-1,2-Dichloroethene	6.1			E	0.5	U			0.5	U		
2-Butanone (MEK)	4.0	U			4.0	U			4.0	U		
Bromochloromethane	0.5	U			0.5	U			0.5	U		
Chloroform	210			E	0.5	U			0.5	U		
1,1,1-Trichloroethane	1.7				0.5	U			0.5	U		
Carbon tetrachloride	0.2	L	J	A	0.5	U			0.5	U		
1,1-Dichloropropene	0.5	U			0.5	U			0.5	U		
Benzene	0.5				0.5	U			0.5	U		
1,2-Dichloroethane	17				0.5	U			0.7			
Trichloroethene	260			E	0.5	U			0.4	L	J	A
1,2-Dichloropropane	0.5	U			0.5	U			0.5	U		
Dibromomethane	0.5	U			0.5	U			0.5	U		
Bromodichloromethane	0.5	U			0.5	U			0.5	U		
cis-1,3-Dichloropropene	0.5	U			0.5	U			0.5	U		
Toluene	0.5	U			0.5	U			0.5	U		
trans-1,3-Dichloropropene	0.5	U			0.5	U			0.5	U		
1,1,2-Trichloroethane	0.8				0.5	U			0.5	U		
Tetrachloroethene	840			E	0.5	U			1.9			
1,3-Dichloropropane	0.5	U			0.5	U			0.5	U		
Chlorodibromomethane	0.5	U			0.5	U			0.5	U		
1,2-Dibromoethane (EDB)	0.5	U			0.5	U			0.5	U		
Chlorobenzene	0.5	U			0.5	U			0.5	U		
1,1,1,2-Tetrachloroethane	0.5	U			0.5	U			0.5	U		
Ethylbenzene	0.5	U			0.5	U			0.5	U		
m&p-Xylene	1.0	U			1.0	U			1.0	U		
o-Xylene	0.5	U			0.5	U			0.5	U		
Styrene	0.5	U			0.5	U			0.5	U		
Bromoform	0.5	U			0.5	U			0.5	U		
Isopropylbenzene	0.5	U			0.5	U			0.5	U		
Bromobenzene	0.5	U			0.5	U			0.5	U		
1,1,2,2-Tetrachloroethane	0.5	U			0.5	U			0.5	U		
1,2,3-Trichloropropane	0.5	U			0.5	U			0.5	U		
Propylbenzene	0.5	U			0.5	U			0.5	U		
2-Chlorotoluene	0.5	U			0.5	U			0.5	U		
4-Chlorotoluene	0.5	U			0.5	U			0.5	U		
1,3,5-Trimethylbenzene	0.5	U			0.5	U			0.5	U		
tert-Butylbenzene	0.5	U			0.5	U			0.5	U		
1,2,4-Trimethylbenzene	0.5	U			0.5	U			0.5	U		
sec-Butylbenzene	0.5	U			0.5	U			0.5	U		
1,3-Dichlorobenzene	0.5	U			0.5	U			0.5	U		
p-Isopropyltoluene	0.5	U			0.5	U			0.5	U		
1,4-Dichlorobenzene	0.5	U			0.5	U			0.5	U		
1,2-Dichlorobenzene	0.5	U			0.5	U			0.5	U		
Butylbenzene	0.5	U			0.5	U			0.5	U		
1,2-Dibromo-3-chloropropane	2.0	U			2.0	U			2.0	U		
1,2,4-Trichlorobenzene	0.5	U			0.5	U			0.5	U		
Hexachlorobutadiene	0.5	U			0.5	U			0.5	U		
Naphthalene	0.5	U			0.5	U			0.5	U		
1,2,3-Trichlorobenzene	0.5	U			0.5	U			0.5	U		

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
N/A-Not Applicable, NA-Not Analyzed

FD1, FD2, etc.- Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank, TB-Trip Blank
BG-Background Sample

ANALYTICAL RESULTS
TABLE 1A

Case Number: R06S31
Site: Omega Chemical OU-2 March 2006 Sampling
SDG: 06075B
Lab: USEPA Region 9 Laboratory
Reviewer: Lisa Norosky, DataVal, Inc.
Date: 2-Oct-06

Analysis: Volatile Organic Compounds
Matrix: Water

Station Location	EB				OC2-MW12-W-0-203				Method Blank			
Sample ID	OC2-MW13B-W-3-202				OC2-MW12-W-0-203				B6C0114-BLK1			
Lab Sample ID	0603049-07				0603049-08				20-Mar-06			
Date of Collection	15-Mar-06				15-Mar-06				ug/L			
Units	ug/L				ug/L							
Analyte	Result	Q	Val	Com	Result	Q	Val	Com	Result	Q	Val	Com
Dichlorodifluoromethane	0.5	U			0.5	U			0.5	U		
Chloromethane	0.5	U			0.5	U			0.5	U		
Vinyl chloride	0.5	U			0.5	U			0.5	U		
Bromomethane	0.5	U			0.5	U			0.5	U		
Chloroethane	0.5	U			0.5	U			0.5	U		
Trichlorofluoromethane	0.5	U			03	L	J	A	0.5	U		
1,1-Dichloroethene	0.5	U			6.8				0.5	U		
Freon 113	0.2	L	J	A	0.2		UJ	B	0.5	U		
Acetone	2.2	L	J	A	42				4.0	U		
Dichloromethane	0.5	U			0.5	U			0.5	U		
trans-1,2-Dichloroethene	0.5	U			0.5	U			0.5	U		
Methyl t-butyl ether(MTBE)	2.0	U			2.0	U			2.0	U		
1,1-Dichloroethane	0.5	U			0.5	U			0.5	U		
2,2-Dichloropropane	0.5	U			0.5	U			0.5	U		
cis-1,2-Dichloroethene	0.5	U			0.5	U			0.5	U		
2-Butanone (MEK)	4.0	U			4.0	U			4.0	U		
Bromochloromethane	0.5	U			0.5	U			0.5	U		
Chloroform	0.5	U			0.2	L	J	A	0.5	U		
1,1,1-Trichloroethane	0.5	U			0.5	U			0.5	U		
Carbon tetrachloride	0.5	U			0.5	U			0.5	U		
1,1-Dichloropropene	0.5	U			0.5	U			0.5	U		
Benzene	0.5	U			0.2	L	J	A	0.5	U		
1,2-Dichloroethane	0.5	U			0.5	U			0.5	U		
Trichloroethene	0.5	U			130				0.5	U		
1,2-Dichloropropane	0.5	U			0.5	U			0.5	U		
Dibromomethane	0.5	U			0.5	U			0.5	U		
Bromodichloromethane	0.5	U			0.5	U			0.5	U		
cis-1,3-Dichloropropene	0.5	U			0.5	U			0.5	U		
Toluene	0.5	U			0.3	L	J	A	0.5	U		
trans-1,3-Dichloropropene	0.5	U			0.5	U			0.5	U		
1,1,2-Trichloroethane	0.5	U			0.5	U			0.5	U		
Tetrachloroethene	02	L	J	A	8.1				0.5	U		
1,3-Dichloropropane	0.5	U			0.5	U			0.5	U		
Chlorodibromomethane	0.5	U			0.5	U			0.5	U		
1,2-Dibromoethane (EDB)	0.5	U			0.5	U			0.5	U		
Chlorobenzene	0.5	U			0.5	U			0.5	U		
1,1,1,2-Tetrachloroethane	0.5	U			0.5	U			0.5	U		
Ethylbenzene	0.5	U			0.5	U			0.5	U		
m&p-Xylene	1.0	U			1.0	U			1.0	U		
o-Xylene	0.5	U			0.5	U			0.5	U		
Styrene	0.5	U			0.5	U			0.5	U		
Bromoform	0.5	U			0.5	U			0.5	U		
Isopropylbenzene	0.5	U			0.5	U			0.5	U		
Bromobenzene	0.5	U			0.5	U			0.5	U		
1,1,2,2-Tetrachloroethane	0.5	U			0.5	U			0.5	U		
1,2,3-Trichloropropane	0.5	U			0.5	U			0.5	U		
Propylbenzene	0.5	U			0.5	U			0.5	U		
2-Chlorotoluene	0.5	U			0.5	U			0.5	U		
4-Chlorotoluene	0.5	U			0.5	U			0.5	U		
1,3,5-Trimethylbenzene	0.5	U			0.5	U			0.5	U		
tert-Butylbenzene	0.5	U			0.5	U			0.5	U		
1,2,4-Trimethylbenzene	0.5	U			0.5	U			0.5	U		
sec-Butylbenzene	0.5	U			0.5	U			0.5	U		
1,3-Dichlorobenzene	0.5	U			0.5	U			0.5	U		
p-Isopropyltoluene	0.5	U			0.5	U			0.5	U		
1,4-Dichlorobenzene	0.5	U			0.5	U			0.5	U		
1,2-Dichlorobenzene	0.5	U			0.5	U			0.5	U		
Butylbenzene	0.5	U			0.5	U			0.5	U		
1,2-Dibromo-3-chloropropane	2.0	U			2.0	U			2.0	U		
1,2,4-Trichlorobenzene	0.5	U			0.5	U			0.5	U		
Hexachlorobutadiene	0.5	U			0.5	U			0.5	U		
Naphthalene	0.5	U			0.5	U			0.5	U	J	C
1,2,3-Trichlorobenzene	0.5	U			0.5	U			0.5	U		

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
N/A-Not Applicable, NA-Not Analyzed

FD1, FD2, etc.- Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank, TB-Trip Blank
BG-Background Sample

ANALYTICAL RESULTS
TABLE 1A

Case Number: R06S31
Site: Omega Chemical OU-2 March 2006 Sampling
SDG: 06075B
Lab: USEPA Region 9 Laboratory
Reviewer: Lisa Norosky, DataVal, Inc.
Date: 2-Oct-06

Analysis: Volatile Organic Compounds
Matrix: Water

Station Location Sample ID Lab Sample ID Date of Collection Units Analyte	Method Blank B6C0116-BLK1 17-Mar-06 ug/L Result	Q	Val	Com	Method Blank B6C0130-BLK1 21-Mar-06 ug/L Result	Q	Val	Com	Method Blank B6C0148-BLK1 22-Mar-06 ug/L Result	Q	Val	Com
Dichlorodifluoromethane	0.5	U			0.5	U			0.5	U		
Chloromethane	0.5	U			0.5	U			0.5	U		
Vinyl chloride	0.5	U			0.5	U			0.5	U		
Bromomethane	0.5	U			0.5	U			0.5	U		
Chloroethane	0.5	U			0.5	U			0.5	U		
Trichlorofluoromethane	0.5	U			0.5	U			0.5	U		
1,1-Dichloroethene	0.5	U			0.5	U			0.5	U		
Freon 113	0.5	U			0.5	U			0.5	U		
Acetone	4.0	U			4.0	U			4.0	U		
Dichloromethane	0.5	U			0.5	U			0.5	U		
trans-1,2-Dichloroethene	0.5	U			0.5	U			0.5	U		
Methyl t-butyl ether(MTBE)	2.0	U			2.0	U			2.0	U		
1,1-Dichloroethane	0.5	U			0.5	U			0.5	U		
2,2-Dichloropropane	0.5	U			0.5	U			0.5	U		
cis-1,2-Dichloroethene	0.5	U			0.5	U			0.5	U		
2-Butanone (MEK)	4.0	U			4.0	U			4.0	U		
Bromochloromethane	0.5	U			0.5	U			0.5	U		
Chloroform	0.5	U			0.5	U			0.5	U		
1,1,1-Trichloroethane	0.5	U			0.5	U			0.5	U		
Carbon tetrachloride	0.5	U			0.5	U			0.5	U		
1,1-Dichloropropene	0.5	U			0.5	U			0.5	U		
Benzene	0.5	U			0.5	U			0.5	U		
1,2-Dichloroethane	0.5	U			0.5	U			0.5	U		
Trichloroethene	0.5	U			0.5	U			0.5	U		
1,2-Dichloropropane	0.5	U			0.5	U			0.5	U		
Dibromomethane	0.5	U			0.5	U			0.5	U		
Bromodichloromethane	0.5	U			0.5	U			0.5	U		
cis-1,3-Dichloropropene	0.5	U			0.5	U			0.5	U		
Toluene	0.5	U			0.5	U			0.5	U		
trans-1,3-Dichloropropene	0.5	U			0.5	U			0.5	U		
1,1,2-Trichloroethane	0.5	U			0.5	U			0.5	U		
Tetrachloroethene	0.5	U			0.5	U			0.5	U		
1,3-Dichloropropane	0.5	U			0.5	U			0.5	U		
Chlorodibromomethane	0.5	U			0.5	U			0.5	U		
1,2-Dibromoethane (EDB)	0.5	U			0.5	U			0.5	U		
Chlorobenzene	0.5	U			0.5	U			0.5	U		
1,1,1,2-Tetrachloroethane	0.5	U			0.5	U			0.5	U		
Ethylbenzene	0.5	U			0.5	U			0.5	U		
m&p-Xylene	1.0	U			1.0	U			1.0	U		
o-Xylene	0.5	U			0.5	U			0.5	U		
Styrene	0.5	U			0.5	U			0.5	U		
Bromoform	0.5	U			0.5	U			0.5	U		
Isopropylbenzene	0.5	U			0.5	U			0.5	U		
Bromobenzene	0.5	U			0.5	U			0.5	U		
1,1,2,2-Tetrachloroethane	0.5	U			0.5	U			0.5	U		
1,2,3-Trichloropropane	0.5	U			0.5	U			0.5	U		
Propylbenzene	0.5	U			0.5	U			0.5	U		
2-Chlorotoluene	0.5	U			0.5	U			0.5	U		
4-Chlorotoluene	0.5	U			0.5	U			0.5	U		
1,3,5-Trimethylbenzene	0.5	U			0.5	U			0.5	U		
tert-Butylbenzene	0.5	U			0.5	U			0.5	U		
1,2,4-Trimethylbenzene	0.5	U			0.5	U			0.5	U		
sec-Butylbenzene	0.5	U			0.5	U			0.5	U		
1,3-Dichlorobenzene	0.5	U			0.5	U			0.5	U		
p-Isopropyltoluene	0.5	U			0.5	U			0.5	U		
1,4-Dichlorobenzene	0.5	U			0.5	U			0.5	U		
1,2-Dichlorobenzene	0.5	U			0.5	U			0.5	U		
Butylbenzene	0.5	U			0.5	U			0.5	U		
1,2-Dibromo-3-chloropropane	2.0	U			2.0	U			2.0	U		
1,2,4-Trichlorobenzene	0.5	U			0.5	U			0.5	U		
Hexachlorobutadiene	0.5	U			0.5	U			0.5	U		
Naphthalene	0.5	U			0.5	U			0.5	U		
1,2,3-Trichlorobenzene	0.5	U			0.5	U			0.5	U		

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
N/A-Not Applicable, NA-Not Analyzed

FD1, FD2, etc.- Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank, TB-Trip Blank
BG-Background Sample

ANALYTICAL RESULTS
TABLE 1A

Case Number: R06S31
Site: Omega Chemical OU-2 March 2006 Sampling
SDG: 06075B
Lab: USEPA Region 9 Laboratory
Reviewer: Lisa Norosky, DataVal, Inc.
Date: 2-Oct-06

Analysis: Volatile Organic Compounds
Matrix: Water

Station Location	Storage				
Sample ID	Blank				
Lab Sample ID	REFRIG. BLANK				QL
Date of Collection	13-Mar-06				
Units	ug/L				ug/L
Analyte	Result	Q	Val	Com	Result
Dichlorodifluoromethane	0.5	U			0.5
Chloromethane	0.5	U			0.5
Vinyl chloride	0.5	U			0.5
Bromomethane	0.5	U			0.5
Chloroethane	0.5	U			0.5
Trichlorofluoromethane	0.5	U			0.5
1,1-Dichloroethene	0.5	U			0.5
Freon 113	0.5	U			0.5
Acetone	4.0	U			4.0
Dichloromethane	0.5	U			0.5
trans-1,2-Dichloroethene	0.5	U			0.5
Methyl t-butyl ether(MTBE)	2.0	U			2.0
1,1-Dichloroethane	0.5	U			0.5
2,2-Dichloropropane	0.5	U			0.5
cis-1,2-Dichloroethene	0.5	U			0.5
2-Butanone (MEK)	4.0	U			4.0
Bromochloromethane	0.5	U			0.5
Chloroform	0.5	U			0.5
1,1,1-Trichloroethane	0.5	U			0.5
Carbon tetrachloride	0.5	U			0.5
1,1-Dichloropropene	0.5	U			0.5
Benzene	0.5	U			0.5
1,2-Dichloroethane	0.5	U			0.5
Trichloroethene	0.5	U			0.5
1,2-Dichloropropane	0.5	U			0.5
Dibromomethane	0.5	U			0.5
Bromodichloromethane	0.5	U			0.5
cis-1,3-Dichloropropene	0.5	U			0.5
Toluene	0.5	U			0.5
trans-1,3-Dichloropropene	0.5	U			0.5
1,1,2-Trichloroethane	0.5	U			0.5
Tetrachloroethene	0.5	U			0.5
1,3-Dichloropropane	0.5	U			0.5
Chlorodibromomethane	0.5	U			0.5
1,2-Dibromoethane (EDB)	0.5	U			0.5
Chlorobenzene	0.5	U			0.5
1,1,1,2-Tetrachloroethane	0.5	U			0.5
Ethylbenzene	0.5	U			0.5
m&p-Xylene	1.0	U			1.0
o-Xylene	0.5	U			0.5
Styrene	0.5	U			0.5
Bromoform	0.5	U			0.5
Isopropylbenzene	0.5	U			0.5
Bromobenzene	0.5	U			0.5
1,1,2,2-Tetrachloroethane	0.5	U			0.5
1,2,3-Trichloropropane	0.5	U			0.5
Propylbenzene	0.5	U			0.5
2-Chlorotoluene	0.5	U			0.5
4-Chlorotoluene	0.5	U			0.5
1,3,5-Trimethylbenzene	0.5	U			0.5
tert-Butylbenzene	0.5	U			0.5
1,2,4-Trimethylbenzene	0.5	U			0.5
sec-Butylbenzene	0.5	U			0.5
1,3-Dichlorobenzene	0.5	U			0.5
p-Isopropyltoluene	0.5	U			0.5
1,4-Dichlorobenzene	0.5	U			0.5
1,2-Dichlorobenzene	0.5	U			0.5
Butylbenzene	0.5	U			0.5
1,2-Dibromo-3-chloropropane	2.0	U			2.0
1,2,4-Trichlorobenzene	0.5	U			0.5
Hexachlorobutadiene	0.5	U			0.5
Naphthalene	0.5	U			0.5
1,2,3-Trichlorobenzene	0.5	U			0.5

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
N/A-Not Applicable, NA-Not Analyzed

FD1, FD2, etc.- Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank, TB-Trip Blank
BG-Background Sample

ANALYTICAL RESULTS - TENTATIVELY IDENTIFIED COMPOUNDS
TABLE 1F

Case Number: R06S31
Site: Omega Chemical OU-2 March 2006 Sampling
SDG: 06075B
Lab: USEPA Region 9 Laboratory
Reviewer: Lisa Norosky, DataVal, Inc.
Date: 2-Oct-06

Analysis: VOCs
Matrix: Water

Station Location	OC2-MW23D-W-5-196				Station Location	TB			
Sample ID	OC2-MW23D-W-5-196				Sample ID	OC2-MW23D-W-4-197			
Lab Sample ID	0603049-01				Lab Sample ID	0603049-02			
Date of Collection	15-Mar-06				Date of Collection	15-Mar-06			
Units	ug/L				Units	ug/L			
Analyte	Result	Q	Val	Com	Analyte	Result	Q	Val	Com
None					Ethyl acetate	3.8	L	NJ	

Station Location	FD1				Station Location	FD1			
Sample ID	OC2-MW15-W-0-198				Sample ID	OC2-MW15-W-1-199			
Lab Sample ID	0603049-03				Lab Sample ID	0603049-04			
Date of Collection	15-Mar-06				Date of Collection	15-Mar-06			
Units	ug/L				Units	ug/L			
Analyte	Result	Q	Val	Com	Analyte	Result	Q	Val	Com
Ethane,-dichloro-trifluoro(...	16	L	NJ		Alkane PEAK2 : Straight-Chain	15	L	NJ	
Methane, dichlorofluoro-	5.1	L	NJ		Methane, dichlorofluoro-	6.2	L	NJ	
Ethane,-dichlorotrifluoro-(...	21	L	NJ		Ethane,-tetrachloro-di	3.3	L	NJ	
Ethane, -tetrachloro-di	3.2	L	NJ		Alkane PEAK1 : Straight-Chain	18	L	NJ	

Station Location	FB				Station Location	OC2-MW13B-W-0-201			
Sample ID	OC2-MW15-W-2-200				Sample ID	OC2-MW13B-W-0-201			
Lab Sample ID	0603049-05				Lab Sample ID	0603049-06			
Date of Collection	15-Mar-06				Date of Collection	15-Mar-06			
Units	ug/L				Units	ug/L			
Analyte	Result	Q	Val	Com	Analyte	Result	Q	Val	Com
None					None				

Station Location	EB				Station Location	OC2-MW12-W-0-203			
Sample ID	OC2-MW13B-W-3-202				Sample ID	OC2-MW12-W-0-203			
Lab Sample ID	0603049-07				Lab Sample ID	0603049-08			
Date of Collection	15-Mar-06				Date of Collection	15-Mar-06			
Units	ug/L				Units	ug/L			
Analyte	Result	Q	Val	Com	Analyte	Result	Q	Val	Com
None					Unknown	1.4	L	NJ	
					Ethyl acetate	3.8		UJ	B

Station Location	Method				Station Location	Method			
Sample ID	Blank				Sample ID	Blank			
Lab Sample ID	B6C0114-BLK1				Lab Sample ID	B6C0116-BLK1			
Date of Collection	20-Mar-06				Date of Collection	17-Mar-06			
Units	ug/L				Units	ug/L			
Analyte	Result	Q	Val	Com	Analyte	Result	Q	Val	Com
None					None				

Station Location	Method				Station Location	Method			
Sample ID	Blank				Sample ID	Blank			
Lab Sample ID	B6C0130-BLK1				Lab Sample ID	B6C0148-BLK1			
Date of Collection	21-Mar-06				Date of Collection	22-Mar-06			
Units	ug/L				Units	ug/L			
Analyte	Result	Q	Val	Com	Analyte	Result	Q	Val	Com
None					None				

Station Location	Storage
Sample ID	Blank
Lab Sample ID	REFRIG. BLANK
Date of Collection	13-Mar-06
Units	ug/L

Analyte	Result	Q	Val	Com
Ethyne, fluoro-	1.3	L	NJ	

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
N/A-Not Applicable, NA-Not Analyzed

FD1, FD2, etc.- Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank, TB-Trip Bl
BG-Background Sample

ANALYTICAL RESULTS
TABLE 1A

Case Number: R06S31
Site: Omega Chemical OU-2 March 2006 Sampling
SDG: 06069D
Lab: USEPA Region 9 Laboratory
Reviewer: Lisa Norosky, DataVal, Inc.
Date: 2-Oct-06

Analysis: 1,4-Dioxane
Matrix: Water

Station Location	FD1				FD1				OC2-MW10-W-0-179				OC2-MW3-W-0-180			
Sample ID	OC2-MW11-W-0-176				OC2-MW11-W-1-177				OC2-MW10-W-0-179				OC2-MW3-W-0-180			
Lab Sample ID	0603035-02				0603035-03				0603035-05				0603035-06			
Date of Collection	9-Mar-06				9-Mar-06				9-Mar-06				9-Mar-06			
Units	ug/L				ug/L				ug/L				ug/L			
Analyte	Result	Q	Val	Com	Result	Q	Val	Com	Result	Q	Val	Com	Result	Q	Val	Com
1,4-Dioxane	1.0	U			1.0	U			2.3				0.6	L	J	A

Station Location	OC2-MW17B-W-0-181				OC2-MW17C-W-5-183				OC2-MW16A-W-0-184				OC2-MW16B-W-0-185			
Sample ID	OC2-MW17B-W-0-181				OC2-MW17C-W-5-183				OC2-MW16A-W-0-184				OC2-MW16B-W-0-185			
Lab Sample ID	0603041-01				0603041-03				0603041-04				0603041-05			
Date of Collection	13-Mar-06				13-Mar-06				13-Mar-06				13-Mar-06			
Units	ug/L				ug/L				ug/L				ug/L			
Analyte	Result	Q	Val	Com	Result	Q	Val	Com	Result	Q	Val	Com	Result	Q	Val	Com
1,4-Dioxane	4.4				1.0	U			4.2				1.0	U		

Station Location	OC2-MW16C-W-0-188				FD2				FD2				OC2-MW18B-W-0-192			
Sample ID	OC2-MW16C-W-0-188				OC2-MW18A-W-0-189				OC2-MW18A-W-1-190				OC2-MW18B-W-0-192			
Lab Sample ID	0603046-02				0603046-03				0603046-04				0603046-06			
Date of Collection	15-Mar-06				15-Mar-06				15-Mar-06				15-Mar-06			
Units	ug/L				ug/L				ug/L				ug/L			
Analyte	Result	Q	Val	Com	Result	Q	Val	Com	Result	Q	Val	Com	Result	Q	Val	Com
1,4-Dioxane	0.7	L	J	A	1.0	U			1.0	U			1.0	U		

Station Location	OC2-MW18C-W-0-193				OC2-MW23B-W-0-194				OC2-MW23C-W-0-195				Method			
Sample ID	OC2-MW18C-W-0-193				OC2-MW23B-W-0-194				OC2-MW23C-W-0-195				Blank			
Lab Sample ID	0603046-07				0603046-08				0603046-09				B6C0086-BLK1			
Date of Collection	15-Mar-06				15-Mar-06				15-Mar-06							
Units	ug/L				ug/L				ug/L				ug/L			
Analyte	Result	Q	Val	Com	Result	Q	Val	Com	Result	Q	Val	Com	Result	Q	Val	Com
1,4-Dioxane	1.0	U			0.5	L	J	A	38				1.0	U		

Station Location	Method				Method				
Sample ID	Blank				Blank				
Lab Sample ID	B6C0104-BLK1				B6C0112-BLK1				QL
Date of Collection									
Units	ug/L				ug/L				ug/L
Analyte	Result	Q	Val	Com	Result	Q	Val	Com	Result
1,4-Dioxane	1.0	U			1.0	U			1.0

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
N/A-Not Applicable, NA-Not Analyzed

FD1, FD2, etc.- Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank, TB-Trip Blank
BG-Background Sample

ANALYTICAL RESULTS
TABLE 1A

Case Number: R06S31
Site: Omega Chemical OU-2 March 2006 Sampling
SDG: 06075B
Lab: USEPA Region 9 Laboratory
Reviewer: Lisa Norosky, DataVal, Inc.
Date: 2-Oct-06

Analysis: 1,4-Dioxane
Matrix: Water

Station Location	OC2-MW23D-W-5-196				FD1				FD1				OC2-MW13B-W-0-201			
Sample ID	OC2-MW23D-W-5-196				OC2-MW15-W-0-198				OC2-MW15-W-1-199				OC2-MW13B-W-0-201			
Lab Sample ID	0603049-01				0603049-03				0603049-04				0603049-06			
Date of Collection	15-Mar-06				15-Mar-06				15-Mar-06				15-Mar-06			
Units	ug/L				ug/L				ug/L				ug/L			
Analyte	Result	Q	Val	Com	Result	Q	Val	Com	Result	Q	Val	Com	Result	Q	Val	Com
1,4-Dioxane	1.0	U			70				74				1.0	U		

Station Location	OC2-MW12-W-0-203				Method Blank				Method Blank				
Sample ID	OC2-MW12-W-0-203				B6C0128-BLK1				B6C0145-BLK1				QL
Lab Sample ID	0603049-08												
Date of Collection	15-Mar-06												
Units	ug/L				ug/L				ug/L				ug/L
Analyte	Result	Q	Val	Com	Result	Q	Val	Com	Result	Q	Val	Com	Result
1,4-Dioxane	1.0	U			1.0	U			1.0	U			1.0

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
N/A-Not Applicable, NA-Not Analyzed

FD1, FD2, etc.- Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank, TB-Trip Blank
BG-Background Sample

TABLE 1B

DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW

The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," October 1999.

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

L Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Data Validation Worksheet
Gas Chromatography/Mass Spectrometry

Project Name: Omega Chemical OU2
Project Number: R06S31
Analysis: Volatile Organic Compounds
Method Number: 524.2
Laboratory Name: USEPA Region 9 Laboratory

Performed by/Date: EJN 5-28-06

Reviewed by/Date: APJ 6-23-06

Qualified Data? NO____ YES__X__, see page(s)__27__

SDG Number	Date Sampled	#Samples/Matrix	Validation Level
06075B	15-Mar-06	8 Waters	IV

Data review was performed using the following documents as guidelines (check all that are applicable):

- [ ] USEPA CLP National Functional Guidelines for Organic Data Review (NFG Org.), October 1999
- [X] USEPA CLP National Functional Guidelines for Low Concentration Organic Data Review (NFG LL Org.), June 2001
- [X] Project guidance document(s): **EPA Region IX Laboratory SOP #354r5**
- [ ] Analysis method

- [ ] **Validated using QuikVal** (See attached QuikVal sheets for Holding Time, Surrogate, LCS and MS/MSD evaluation)

ITEMS CHECKED - LEVEL III (Where Applicable)
Sample Receiving
Electronic Data Deliverables
Case Narrative
Holding Times
Instrument Run Logs
Initial Instrument Calibration
Continuing Instrument Calibration
Method Blanks
Surrogates
Laboratory Control Samples
Matrix Spikes/Matrix Spike Duplicates
Field Duplicates
Field QC Blanks
Reporting Limits

ITEMS CHECKED - LEVEL IV (Where Applicable)
Sample Receiving
Electronic Data Deliverables
Case Narrative
Holding Times
Instrument Run Logs
GC/MS Instrument Performance
Initial Instrument Calibration
Continuing Instrument Calibration
Method Blanks
Surrogates
Laboratory Control Samples
Matrix Spikes/Matrix Spike Duplicates
Field Duplicates
Field QC Blanks

ITEMS CHECKED - LEVEL IV continued (Where Applicable)
Reporting Limits
Internal Standards
Raw Data
Re-calculation of reported results
Extraction Logs
Tentatively Identified Compounds
System Performance

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Data Validation Worksheet
Gas Chromatography/Mass Spectrometry

SAMPLE RECEIVING

	YES	NO	N/A
All COC forms relinquished and received with signature/date?	X		
Reported sample IDs match those listed on COC?	X		
Reported analyses/methods match those listed on COC?	X		
Lab report includes results for every sample/analysis as listed on COC?	X		
Cooler Receipt form present?	X		
Cooler Receipt form filled in completely and signed?	X		
Temperature recorded from:	Not noted		
Recorded temperature between 2C and 6C?	X		
Bubbles present in VOAs?	None noted		

List of Anomalies/Recommended Actions

X **No action required**

ELECTRONIC DATA DELIVERABLES

	YES	NO	N/A
Are EDDs included with the data package?	X		
Does client require EDD check against hardcopy?		X	
Were all EDDs verified against hardcopy results?			X
Did all EDD results match reported results?			X
Were anomalies noted?			X
Was the project office/lab notified?			X

List of Anomalies/Recommended Actions

☐ **No action required**

CLIENT NOTIFICATION

Add Memo Items of Missing Info./Corrections Below	**Response Received? YES**	**NO**
☐ **There were no memo items for this project.**		
SDG 06075B / VOCs by 524.2 – the BFB summary was missing for the initial calibration for instrument HP5973J; it was analyzed on 3/3/06 at 10:15.		

CASE NARRATIVES/LABORATORY REPORT FOOTNOTES

	YES	NO	N/A
Case Narrative present in data package?		X	
Are anomalies noted in the CN? (If yes, place an 'X' below)			X
Are anomalies noted in report footnotes? (If yes, place an 'X' below)	X		

THE FOLLOWING ANOMALIES WERE NOTED IN CASE NARRATIVES/LABORATORY REPORT FOOTNOTES:

Sample Delivery Group (SDG) Number:	**06075B**					
Missed extraction/analysis holding time						
Surrogate failure						
Method blank contamination	X					
Instrument blank contamination						
LCS and/or LCS RPD failure						
MS/MSD and/or MS/MSD RPD failure	X					
Laboratory duplicate failure						
Compound identification anomaly						
Elevated RSD in the ICAL	X					
Other ICAL anomalies						
Elevated %D in the CCV						
Other CCV anomalies						
Internal standard failure						
Value exceeding the linear range of the instrument						
Co-elution						
Result reported below the quantition limit						
Other notations (list below)	X(1)					

List of Anomalies

☐ **No anomalies were noted in the case narrative(s)/laboratory report footnotes included with this project.**

(1) THE QLS DID NOT MEET CRITERIA.

HOLDING TIMES

Enter Date as mo/day/year
DBE and DBA is calculated automatically

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received	Preservation & Temp	Extraction Date	Analysis Date	DBE	DBA	Comments
OC2-MW23D-W-5-196 (QC)	0603049-01	Water	15-Mar-06	16-Mar-06	3C/4C *	NA	21-Mar-06	NA	6	
OC2-MW23D-W-4-197 (TB)	0603049-02	Water	15-Mar-06	16-Mar-06	3C/4C *	NA	17-Mar-06	NA	2	
OC2-MW15-W-0-198 (FD1)	0603049-03	Water	15-Mar-06	16-Mar-06	3C/4C *	NA	21-Mar-06	NA	6	
OC2-MW15-W-1-199 (FD1)	0603049-04	Water	15-Mar-06	16-Mar-06	3C/4C *	NA	21-Mar-06	NA	6	
OC2-MW15-W-2-200 (FB)	0603049-05	Water	15-Mar-06	16-Mar-06	3C/4C *	NA	21-Mar-06	NA	6	
OC2-MW13B-W-0-201	0603049-06	Water	15-Mar-06	16-Mar-06	3C/4C *	NA	22-Mar-06	NA	7	
OC2-MW13B-W-3-202 (EB)	0603049-07	Water	15-Mar-06	16-Mar-06	3C/4C *	NA	17-Mar-06	NA	2	
OC2-MW12-W-0-203	0603049-08	Water	15-Mar-06	16-Mar-06	3C/4C *	NA	17-Mar-06	NA	2	

DBE = Days before extraction (extraction date - collection date)
DBA = Days before analysis (analysis date - extraction date)

ACCEPTANCE CRITERIA:

	Aqueous
DBA - Volatiles	**14**
DBE - Semi-volatiles	7
DBA - Semi-volatiles	40

	Solid
DBA - Volatiles	14
DBE - Semi-volatiles	14
DBA - Semi-volatiles	40

Recommended Actions

X **No action required**

IF RESULTS WERE REPORTED FROM MORE THAN ONE RUN, THE DATE OF THE LAST RUN WAS ENTERED ABOVE.

*** PRESERVATIVE NOT NOTED IN COC.**

Data Validation Worksheet
Gas Chromatography/Mass Spectrometry

SURROGATE RECOVERIES

	YES	NO	N/A
Form Present?	Form I		
All samples listed?	X		
Results agree with raw data? (Level IV)	X		
Did laboratory spike project required surrogate(s)?	X		

ACCEPTANCE CRITERIA REFERENCE: EPA Region IX Laboratory SOP #354r5

ACCEPTANCE LIMITS:
(LIST SURROGATES SPIKED)

1,2-DCA-d4	70-130
Toluene-d8	70-130
Bromofluorobenzene	70-130
1,2-Dichlorobenzene-d4	70-130

List of Anomalies/Recommended Actions

X **No action required**

*If sample DF > or = 5X, no qualification is required.

LIST ALL RECOVERIES OUTSIDE PROJECT LIMITS

Sample ID	Laboratory ID	Surrogate	Original Recovery	Re-run/ Re-ext'd Recovery	Sample DF*	Comments
						None

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SURROGATE RECOVERIES - AVERAGE RESPONSE FACTOR

CALCULATIONS:
ug/L=Ax*Is**Vt*DF*GPC/Ais*RRF*Vo*Vi
ug/Kg=Ax*Is*Vt*Df*GPC/Ais*RRF*Vi*Ws*D

Sample ID: OC2-MW23D-W-5-196
Laboratory ID: 0603049-01

	Surrogate: 1,2-DCA-d4		**Surrogate: Toluene-d8**		**Surrogate: BFB**		**Surrogate: 1,2-Dichlorobenzene-d4**		
Ax=	76286	**6.02699616**	447321	**4.65061209**	138221	**4.16766448**	126194	**4.80180637**	Area cmpd in sample
Is=	125		125		125		125		Amt IS, in ng
Vt=	1		1		1		1		Volume of extract, in uL
Df=	1		1		1		1		Dilution factor
GPC=	1		1		1		1		1 if GPC not done, 2 if GPC done
Ais=	410954		330989		330989		330989		Area IS
RRF=	0.154		1.453		0.501		0.397		RRF (average from curve)
Vi=	1		1		1		1		Volume of extract injected, in uL
Ws=	25		25		25		25		Volume of sample, in mL (or Wt in g)
D=	1		1		1		1		Dry-weight (1 if not taken into acct)
%Recovery		**121**		**93**		**83**		**96**	

	YES	**NO**
CALCULATED VALUES MATCH REPORTED VALUES?	**X**	

METHOD BLANK ANALYSES

	YES	NO	N/A
Performed for each matrix?	X		
Performed for each GCMS system?	X		
Performed for each extraction batch?			X
Performed for each analysis batch?	X		
Form Present?	X		
Did laboratory take appropriate corrective action for blank contamination greater than project acceptance criteria?			X

ACCEPTANCE CRITERIA REFERENCE: Client

ACCEPTANCE LEVEL FOR CONTAMINATION: <RL

LIST CONTAMINANTS DETECTED IN METHOD BLANKS

Blank ID	Matrix	Compound	Concen-tration	Units	5X (or 10X)	Comments
B6C0114-BLK1	Water	Dichloromethane	0.3	ug/L	**1.5**	**(2)**
B6C0130-BLK1	Water	Dichloromethane	0.3	ug/L	**1.5**	**(2)**

LIST ALL METHOD BLANKS AND THEIR ASSOCIATED SAMPLES

Blank ID	Matrix	Associated Samples
B6C0114-BLK1	Water	OC2-MW15-W-0-198
B6C0116-BLK1	Water	OC2-MW23D-W-4-197, OC2-MW13B-W-3-202 and OC2-MW12-W-0-203
B6C0130-BLK1	Water	OC2-MW23D-W-5-196, OC2-MW15-W-0-198, OC2-MW15-W-1-199 and OC2-MW15-W-2-200
B6C0148-BLK1	Water	OC2-MW13B-W-0-201
REFRIG. BLANK	Water	OC2-MW23D-W-5-196, OC2-MW23D-W-4-197, OC2-MW15-W-0-198, OC2-MW15-W-1-199, OC2-MW15-W-2-200, OC2-MW13B-W-0-201, OC2-MW13B-W-3-202 and OC2-MW12-W-0-203

List of Anomalies/Recommended Actions

X **No action required**

- Methylene chloride, acetone, and 2-butanone are considered common volatile laboratory contaminants (use 10X rule).
- Phthalates are considered common semi-volatile laboratory contaminants (use 10X rule).

(1) Sample results greater than 5X (or 10X) blank amount.
(2) Sample results non-detect.
(3) No associated samples.

FIELD QC BLANK ANALYSES

TRIP BLANK ANALYSES

	YES	NO	N/A
Trip Blank analyzed?	X		
Form Present?	X		

FIELD BLANK ANALYSES

	YES	NO	N/A
Field Blank analyzed?	X		
Form Present?	X		

EQUIPMENT BLANK ANALYSES

	YES	NO	N/A
Equipment/Rinse Blank analyzed?	X		
Form Present?	X		

LIST CONTAMINANTS DETECTED IN TRIP, FIELD, AND EQUIPMENT BLANKS

Blank ID	Laboratory ID	Matrix	Compound	Concen-tration	Units	5X (or 10X)	Comments
OC2-MW23D-W-4-197 (TB)	0603049-02	Water	Ethyl acetate (TIC)	3.8	ug/L	19	U 002
OC2-MW15-W-2-200 (FB)	0603049-05						None
OC2-MW13B-W-3-202 (EB)	0603049-07	Water	Freon 113	0.2	ug/L	1	U 002
OC2-MW13B-W-3-202 (EB)	0603049-07	Water	Acetone	2.2	ug/L	11	(1), (2)
OC2-MW13B-W-3-202 (EB)	0603049-07	Water	Tetrachloroethene	0.2	ug/L	1	U 002

List of Anomalies/Recommended Actions

☐ **No action required**

- Methylene chloride, acetone, and 2-butanone are considered common volatile laboratory contaminants (use 10X rule).
- Phthalates are considered common semi-volatile laboratory contaminants (use 10X rule).

(1) Sample results greater than 5X (or 10X) blank amount.
(2) Sample results non-detect.
(3) No associated samples.

QUALIFY TIC COMPOUND ETHYL ACETATE U 002 FOR SAMPLE 0603049-08.
QUALIFY FREON U 002 FOR SAMPLES 0603049-01, -06, -08.
QUALIFY PCE U 002 FOR SAMPLE 0603049-01.

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LABORATORY CONTROL SAMPLES (LCS/LCSD)

	YES	NO	NA
Form Present?	X		
%R and RPD within limits?		X	
Spike list match project required list?	X		
Results agree with raw data? (Level IV only)	X		

% RECOVERY AND RPD CALCULATION CHECK
Enter analysis date (mo/day/year), spike amount, LCS result, and LCSD result.
% Recoveries and RPD are automatically calculated.

Analysis Date	Spike Compound	Spike Conc	LCS Result	LCSD Results	LCS %R	LCSD %R	RPD	Agree with lab?	QC Batch Number
20-Mar-06	Benzene	5	4.73	NA	94.6%	NA	NA	YES	B6C0114
17-Mar-06	1,1-DCE	5	5.19	NA	103.8%	NA	NA	YES	B6C0116
21-Mar-06	Trichloroethene	5	4.82	NA	96.4%	NA	NA	YES	B6C0130
22-Mar-06	Tetrachloroethene	5	5.65	NA	113.0%	NA	NA	YES	B6C0148

ACCEPTANCE CRITERIA REFERENCE: EPA Region IX Laboratory SOP #354r5

ACCEPTANCE LIMITS:

%R	RPD	
70-130	NA	Regulated compounds (see SOP for list)
60-140	NA	Non-regulated compounds

LIST ALL RECOVERIES OUTSIDE PROJECT LIMITS

LCS ID	Spike Compound	% Recovery	RPD	Comments
B6C0148-BS1	Bromoform	131	NA	**Samples ND; no qual**
B6C0148-BS1	Naphthalene	141	NA	**Samples ND; no qual**

Recommended Actions

X **No action required**

MATRIX SPIKE/MATRIX SPIKE DUPLICATE ANALYSIS(MS/MSD)

	YES	NO	NA
Form Present?	X		
%R and RPD within limits?		X	
Spike list match project required list?	X		
Results agree with raw data? (Level IV only)	X		

% RECOVERY AND RPD CALCULATION CHECK
Enter analysis date (mo/day/year), spike amount, sample result, MS result, and MSD result
IF sample result is ND, enter "0". % Recoveries and RPD are automatically calculated.

Analysis Date	Spiked Sample	Spike Compound	Spike Conc	Sample Results	MS Result	MSD Results	MS %R	MSD %R	RPD	Agree with lab?	QC Batch Number
21-Mar-06	0603049-01	Chloroform	5	0	4.03	4.15	80.60%	83.00%	2.93%	YES	B6C0130
							#DIV/0!	#DIV/0!	#DIV/0!		

ACCEPTANCE CRITERIA REFERENCE: EPA Region IX Laboratory SOP #311

ACCEPTANCE LIMITS:	%R	RPD
	70-130	20%

LIST ALL RECOVERIES OUTSIDE PROJECT LIMITS

Sample ID	Laboratory ID	Spike Compound	% Recovery	RPD	Mx DF > or = 5X?	4X Rule Applies?	Comments
OC2-MW23D-W-5-196	0603049-01	Dichlorodifluoromethane	58, 61	5 (ok)	NO	NO	**No action is taken on MS/MSD data alone**
OC2-MW23D-W-5-196	0603049-01	Chloromethane	65, 67	2 (ok)	NO	NO	**No action is taken on MS/MSD data alone**
OC2-MW23D-W-5-196	0603049-01	Vinyl chloride	67, 67	0.3 (ok)	NO	NO	**No action is taken on MS/MSD data alone**
OC2-MW23D-W-5-196	0603049-01	Bromomethane	64, 65	0.9 (ok)	NO	NO	**No action is taken on MS/MSD data alone**
OC2-MW23D-W-5-196	0603049-01	Dichloromethane	67, 66	0.9 (ok)	NO	NO	**No action is taken on MS/MSD data alone**
OC2-MW23D-W-5-196	0603049-01	2,2-Dichloropropane	24, 26	8 (ok)	NO	NO	**No action is taken on MS/MSD data alone**
OC2-MW23D-W-5-196	0603049-01	Styrene	0, 0	0 (ok)	NO	NO	**No action is taken on MS/MSD data alone**

Recommended Actions

- [ ] **No action required**
- [ ] **Laboratory reported RPDs based on % recoveries; appropriate method is to calculate RPDs based on concentrations.**
- [ ] **Spike levels differed for MS and MSD.**
- [X] **No action is taken on MS/MSD data alone unless specified in project plan.**
- [ ] **Qualify only the parent sample unless project plan states otherwise.**

(1) 4X Rule.
(2) Dilution factor ≥ 5X.
(3) The parent sample was associated with an unrelated site.

LABORATORY DUPLICATE SAMPLE ANALYSIS

	YES	NO	N/A
Form present?			X
One duplicate per every 20 samples?			X
All RPD within project limits?			X

List of Anomalies/Recommended Actions

☐ **No action required**

ENTER SAMPLE AND DUPLICATE RESULTS
% RPDs are automatically calculated.

Sample ID	Compound	Sample Result	Duplicate Result	RPD	QC Batch Number
				#DIV/0!	
				#DIV/0!	
				#DIV/0!	
				#DIV/0!	
				#DIV/0!	
				#DIV/0!	

ACCEPTANCE CRITERIA REFERENCE: EPA Region IX Laboratory SOP #311

ACCEPTANCE LIMITS: RPD 20%

LIST ALL RECOVERIES OUTSIDE PROJECT LIMITS

Sample ID	Instrument	Compound	RPD	Comments	QC Batch Number

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FIELD DUPLICATES

	YES	NO
Are original/field duplicate pairs identifiable?	X	
%RPD within project acceptance limits?		X

RPD CALCULATION CHECK

IF sample result is ND, enter "0". RPD is automatically calculated

Original Sample ID	Original Lab ID	Matrix	Compound	Orig. Results	Duplicate Sample ID	Duplicate Lab ID	Dup. Results	RPD	Absolute Difference	RL	Meets Criteria?
OC2-MW15-W-0-198	0603049-03	Water	Dichlorodifluoromethane	4.7	OC2-MW15-W-1-199	0603049-04	2.7	**54.1%**	**2**	**0.5**	**NO**
OC2-MW15-W-0-198	0603049-03	Water	trans-1,2-Dichloroethene	2.5	OC2-MW15-W-1-199	0603049-04	1.9	**27.3%**	**0.6**	**0.5**	**NO**
OC2-MW15-W-0-198	0603049-03	Water	tert-Butyl methyl ether (MTBE)	5.6	OC2-MW15-W-1-199	0603049-04	6.1	-8.5%	0.5		YES
OC2-MW15-W-0-198	0603049-03	Water	1,1-Dichloroethane	5.2	OC2-MW15-W-1-199	0603049-04	4.4	16.7%	0.8		YES
OC2-MW15-W-0-198	0603049-03	Water	cis-1,2-Dichloroethene	7.5	OC2-MW15-W-1-199	0603049-04	6.1	**20.6%**	**1.4**	**0.5**	**NO**
OC2-MW15-W-0-198	0603049-03	Water	1,1,1-Trichloroethane	2	OC2-MW15-W-1-199	0603049-04	1.7	16.2%	0.3		YES
OC2-MW15-W-0-198	0603049-03	Water	Carbon tetrachloride	0.2	OC2-MW15-W-1-199	0603049-04	0.2	0.0%	0		YES
OC2-MW15-W-0-198	0603049-03	Water	Benzene	0.5	OC2-MW15-W-1-199	0603049-04	0.5	0.0%	0		YES
OC2-MW15-W-0-198	0603049-03	Water	1,2-Dichloroethane	17	OC2-MW15-W-1-199	0603049-04	17	0.0%	0		YES
OC2-MW15-W-0-198	0603049-03	Water	1,1,2-Trichloroethane	0.7	OC2-MW15-W-1-199	0603049-04	0.8	-13.3%	0.1		YES
OC2-MW15-W-0-198	0603049-03	Water	Trichlorofluoromethane	670	OC2-MW15-W-1-199	0603049-04	340	**65.3%**	**330**	**100/50**	**NO**
OC2-MW15-W-0-198	0603049-03	Water	1,1-Dichloroethene	2000	OC2-MW15-W-1-199	0603049-04	1000	**66.7%**	**1000**	**100/50**	**NO**
OC2-MW15-W-0-198	0603049-03	Water	1,1,2-Trichloro-1,2,2-trifluoroethane	1400	OC2-MW15-W-1-199	0603049-04	910	**42.4%**	**490**	**100/50**	**NO**
OC2-MW15-W-0-198	0603049-03	Water	Chloroform	440	OC2-MW15-W-1-199	0603049-04	210	**70.8%**	**230**	**100/50**	**NO**
OC2-MW15-W-0-198	0603049-03	Water	Trichloroethene	540	OC2-MW15-W-1-199	0603049-04	260	**70.0%**	**280**	**100/50**	**NO**
OC2-MW15-W-0-198	0603049-03	Water	Tetrachloroethene	1900	OC2-MW15-W-1-199	0603049-04	840	**77.4%**	**1060**	**100/50**	**NO**
OC2-MW15-W-0-198	0603049-03	Water	Ethane,-dichloro-trifluoro(...	16	OC2-MW15-W-1-199	0603049-04	ND	NA	NA		NA
OC2-MW15-W-0-198	0603049-03	Water	Methane, dichlorofluoro-	5.1	OC2-MW15-W-1-199	0603049-04	ND	NA	NA		NA
OC2-MW15-W-0-198	0603049-03	Water	Ethane,-dichlorotrifluoro-(...	21	OC2-MW15-W-1-199	0603049-04	ND	NA	NA		NA
OC2-MW15-W-0-198	0603049-03	Water	Ethane, -tetrachloro-di	3.2	OC2-MW15-W-1-199	0603049-04	ND	NA	NA		NA
OC2-MW15-W-0-198	0603049-03	Water	Alkane PEAK2 : Straight-Chain	ND	OC2-MW15-W-1-199	0603049-04	15	NA	NA		NA
OC2-MW15-W-0-198	0603049-03	Water	Methane, dichlorofluoro-	ND	OC2-MW15-W-1-199	0603049-04	6.2	NA	NA		NA
OC2-MW15-W-0-198	0603049-03	Water	Ethane,-tetrachloro-di	ND	OC2-MW15-W-1-199	0603049-04	3.3	NA	NA		NA
OC2-MW15-W-0-198	0603049-03	Water	Alkane PEAK1 : Straight-Chain	ND	OC2-MW15-W-1-199	0603049-04	18	NA	NA		NA
OC2-MW15-W-0-198	0603049-03	Water	All other VOCs	ND	OC2-MW15-W-1-199	0603049-04	ND	NA	NA		YES

Data Validation Worksheet
Gas Chromatography/Mass Spectrometry

ACCEPTANCE CRITERIA REFERENCE: EPA Region IX Laboratory SOP #354r5

ACCEPTANCE LIMITS:

	20%
CRITERIA FOR AQUEOUS RESULTS AT OR NEAR THE RL	+/- 1 X RL
CRITERIA FOR SOIL RESULTS AT OR NEAR THE RL	+/- 2 X RL

LIST ALL RPD OUTSIDE PROJECT LIMITS (DO NOT INCLUDE VALUES < RL)

Original Sample ID	Original Lab ID	Compound	RPD	Comments
OC2-MW15-W-0-198	0603049-03	Dichlorodifluoromethane	54%	**Note in final report**
OC2-MW15-W-0-198	0603049-03	trans-1,2-Dichloroethene	27%	**Note in final report**
OC2-MW15-W-0-198	0603049-03	cis-1,2-Dichloroethene	21%	**Note in final report**
OC2-MW15-W-0-198	0603049-03	Trichlorofluoromethane	65%	**Note in final report**
OC2-MW15-W-0-198	0603049-03	1,1-Dichloroethene	67%	**Note in final report**
OC2-MW15-W-0-198	0603049-03	1,1,2-Trichloro-1,2,2-trifluoroethane	42%	**Note in final report**
OC2-MW15-W-0-198	0603049-03	Chloroform	71%	**Note in final report**
OC2-MW15-W-0-198	0603049-03	Trichloroethene	70%	**Note in final report**
OC2-MW15-W-0-198	0603049-03	Tetrachloroethene	77%	**Note in final report**

Recommended Actions

☐ **No action required**

NOTE OUTLIERS IN FINAL REPORT.

NC: Not calculated. The absolute difference between the sample result and the duplicate sample result is less than the reporting limit.
N/A: Not analyzed
NA: Not applicable. Calculation of the relative percent difference between the sample result and the duplicate sample result is not applicable.

REPORTING LIMITS

	YES	NO
Are the project-specified reporting limits (RLs) met for all project samples?		X
Are the RLs for all soil samples raised by dry weight correction?	NA	
Are the RLs raised due to sample dilutions?	X	
Was dilution required due to high levels of NON-TARGET analytes?		X
Was dilution required due to high levels of TARGET analytes?	X	
Are any samples non-detect at a raised RL? (if so, list below)		X

REPORTING LIMITS REFERENCE: EPA Region IX Laboratory SOP #354r5

If NO, then list:

Compound	Samples Affected	Lab RL	Project RL	Comments
MTBE		2.0	1	

ANALYTE LIST

	YES	NO
Does the reported target analyte list match the project required list?		X

ANALYTE LIST REFERENCE: EPA Region IX Laboratory SOP #354r5

If NO, then list extra or missing compounds:

Compound	Missing?	Extra?	Comments
Freon 113		X	
Acetone		X	
2-Butanone		X	

TENTATIVELY IDENTIFIED COMPOUNDS

	YES	NO
All appropriate peaks searched and reported?	X	
Any TICs found in both samples and blanks?		X
Reasonable identifications reported?	X	
Any TCL compounds reported as TICs?		X

Recommended Actions

X **No action required**

Artifacts, unknowns, and siloxanes are not included above.

SYSTEM PERFORMANCE

	YES	NO
Were standard and sample chromatograms provided for all positive results?	X	
Chromatograms free of abrupt baseline shift?	X	
Chromatograms free of high background?	X	
Chromatograms free of baseline rise?	X	
Chromatograms free of extraneous peaks?	X	
Peak resolution good?	X	
Peaks free of tailing?	X	

Recommended Actions

X **No action required**

GC/MS INSTRUMENT PERFORMANCE CHECK

	YES	NO
Performed for all initial calibrations?	X	
Performed for all continuing calibrations and samples?	X	
Performed every 12 hours?	X	
BFB/DFTPP criteria within method limits?	X	
Concentration of BFB/DFTPP injected:	25 ng	

List of Anomalies/Recommended Actions

X **No action required**

LIST ALL BFB/DFTPP INJECTIONS

Date	GC/MS ID	Injection time	Ratio Check (Level IV only)	Transcript Errors (L IV)	Associated Samples
17-Mar-06	HP5973F	1232	OK	NONE	ICAL
17-Mar-06	HP5973F	1841			0603049-02, -07, -08
21-Mar-06	HP5973F	0950			0603049-01, -03 thru -05, -04RE
22-Mar-06	HP5973F	0824			0603049-06
3-Mar-06	HP5973J	1015			ICAL
20-Mar-06	HP5973J	0952	OK	NONE	0603049-03RE

LIST ALL BFB/DFTPP OUTSIDE CRITERIA (LEVEL IV ONLY)

Date	GC/MS ID	Injection time	Ion Abund Outside Criteria	Comments
				None

GC/MS INSTRUMENT PERFORMANCE CHECK - BFB

Date:	**17-Mar-06**	
Injection Time:	**12:32**	
Instrument ID:	**HP5973F**	
	Enter raw Abund here	Calc Automatic
50=	35280	24.9%
75=	78346	55.3%
95=	141586	
96=	9806	6.9%
173=	0	0.0%
174=	112010	79.1%
175=	8324	7.4%
176=	107690	96.1%
177=	7172	6.7%

Date:	**20-Mar-06**	
Injection Time:	**9:52**	
Instrument ID:	**HP5973J**	
	Enter raw Abund here	Calc Automatic
50=	78282	20.6%
75=	205802	54.2%
95=	379413	
96=	25299	6.7%
173=	0	0.0%
174=	237178	62.5%
175=	19355	8.2%
176=	227549	95.9%
177=	15125	6.6%

	YES	NO
CALCULATED VALUES MATCH REPORTED VALUES?	X	

INITIAL CALIBRATION

	YES	NO
Performed before sample analysis?	X	
Calibration for each matrix?	X	
Calibration for each instrument?	X	
Any Mean RRFs below project limits?		X

ACCEPTANCE CRITERIA REFERENCE: NFG LL Org., June 2001

ACCEPTANCE LIMITS:
Mean RRF 0.01 Poor performers*
Mean RRF 0.05 All others

LIST ALL MEAN RRF THAT DO NOT MEET ACCEPTANCE CRITERIA:

Date	GC/MS ID	Compound	Mean RRF	Comments
				None

ACCEPTANCE CRITERIA REFERENCE: NFG LL Org., June 2001

ACCEPTANCE LIMITS:
%RSD 50 Poor performers*
%RSD 30 All others
CORR COEF (r) 0.995

LIST ALL %RSD AND CORRELATION COEFFICIENTS THAT DO NOT MEET ACCEPTANCE CRITERIA:

Calibration Date	GCMS ID	Matrix	Compound	Corr Coefficient or % RSD	Comments
3-Mar-06	HP5973J	Water	Naphthalene	37%	**J/UJ 003**

LIST ALL ICAL AND ASSOCIATED SAMPLES

Calibration Date	GCMS ID	Matrix	Associated Samples
3-Mar-06	HP5973J	Water	0603049-03
17-Mar-06	HP5973F	Water	0603049-01, -02, -04 thru -08

List of Anomalies/Recommended Actions

☐ **No action required**

*** Volatile compounds exhibiting poor response: Acetone, 2-Butanone, Carbon disulfide, Chloroethane, Chloromethane, Cyclohexane, Chloroethane-d5 (DMC), 1,2-Dichloropropane, 1,2-Dibromo-3-chloropropane, 4-Methyl-2-pentanone, 2-Hexanone, 1,2-Dichloropropane-d6 (DMC), 2-Hexanone-d5 (DMC), 2-Butanone-d5 (DMC).**

QUALIFY NAPHTHALENE UJ 003 FOR SAMPLE 0603049-03 AND METHOD BLANK B6C0114-BLK1.

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INITIAL CALIBRATION - AVERAGE RESPONSE FACTOR

RRF = Ax*Is/Ais*STD **Ax = Area of compound; Is = Amount (in ng) of internal standard;**
Ais= Area of associated internal standard; STD = Amount (in ng) of compound

Date:	**3-Mar-06**		**Date:**	**17-Mar-06**	
Instrument ID:	**HP5973J**		**Instrument ID:**	**HP5973F**	
Compound:	**Trichlorofluoromethane**		**Compound:**	**1,2-Dichloropropane**	
RF1			RF1		
A_x=	25252	RRF	A_x=	113546	RRF
I_s=	125	4.695687748	I_s=	125	0.206731811
A_{is}=	53777		A_{is}=	549243	
STD=	12.5		STD=	125	
RF2			RF2		
A_x=	46301	RRF	A_x=	42119	RRF
I_s=	125	4.242971299	I_s=	125	0.204803565
A_{is}=	54562		A_{is}=	514139	
STD=	25		STD=	50	
RF3			RF3		
A_x=	93339	RRF	A_x=	21026	RRF
I_s=	125	4.272981139	I_s=	125	0.211074325
A_{is}=	54610		A_{is}=	498071	
STD=	50		STD=	25	
RF4			RF4		
A_x=	213765	RRF	A_x=	11404	RRF
I_s=	125	3.85217689	I_s=	125	0.230745106
A_{is}=	55492		A_{is}=	494225	
STD=	125		STD=	12.5	
RF5			RF5		
A_x=	486280	RRF	A_x=	248011	RRF
I_s=	125	4.184205545	I_s=	125	0.222400673
A_{is}=	58109		A_{is}=	557577	
STD=	250		STD=	250	
RF6			RF6		
A_x=	1205087	RRF	A_x=	686979	RRF
I_s=	125	4.145252223	I_s=	125	0.215115201
A_{is}=	58143		A_{is}=	638708	
STD=	625		STD=	625	
AVG. CF	**4.232212474**		**AVG. CF**	**0.215145113**	
SD	**0.272353065**		**SD**	**0.00990259**	
%RSD=	**6.435240834**		**%RSD=**	**4.602749068**	

	YES	NO
CALCULATED VALUES MATCH REPORTED VALUES?	X	

	YES	NO
AMOUNTS INJECTED CONSISTENT THROUGHOUT ANALYTICAL SEQUENCE?	X	

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DAILY CALIBRATION CHECK

RUN LOGS

	YES	NO	N/A
Run logs present in data package?	X		
All samples located on run logs?	X		
All dilutions located on run logs?	X		
Are anomalies noted by the analyst?		X	

PREP LOGS

	YES	NO	N/A
Prep logs present in data package?			X
All samples located on prep logs?			X
All dilutions located on prep logs?			X
Are anomalies noted by the analyst?			X

CONTINUING CALIBRATION

	YES	NO	N/A
Performed before sample analysis?	X		
Performed for each day of analysis?	X		
Performed for each instrument?	X		
Raw data agree with forms? (Level IV only)	X		
Any Daily RRFs below project limits?		X	

ACCEPTANCE CRITERIA REFERENCE: NFG LL Org., June 2001

ACCEPTANCE LIMITS:
RRF 0.01 Poor performers*
RRF 0.05 All others

LIST ALL DAILY RRF THAT DO NOT MEET ACCEPTANCE CRITERIA:

Calibration Date	Time	GCMS ID	Compound	RRF	Comments
					None

ACCEPTANCE CRITERIA REFERENCE: NFG LL Org., June 2001

ACCEPTANCE LIMITS:
%D 50 Poor performers*
%D 30 All others

LIST ALL %D THAT DO NOT MEET ACCEPTANCE CRITERIA (DO NOT INCLUDE SURROGATE %D FAILURES):

Calibration Date	Time	GCMS ID	Matrix	Compound	%D	CCV Out Low	CCV Out High	Comments
								None

List of Anomalies/Recommended Actions

X **No action required**

QL STANDARDS WERE ANALYZED NEAR THE BEGINNING OF EACH ANALYTICAL RUN. ALL COMPOUNDS RECOVERED BETWEEN 50% AND 150% IN THE QL STANDARDS, WITH THE FOLLOWING EXCEPTIONS:

3/20/06 @ 12:19: DICHLOROMETHANE AT 173%; ASSOCIATED SAMPLES WERE NON-DETECT FOR THIS COMPOUND.

3/21/06 @ 11:59: DICHLOROMETHANE AT 162%; ASSOCIATED SAMPLES WERE NON-DETECT FOR THIS COMPOUND.

CONTINUED

DAILY CALIBRATION CHECK CONTINUED

LIST ALL PRECEEDING CCVs AND ASSOCIATED SAMPLES

Calibration Date	Time	GCMS ID	Matrix	Associated Samples
17-Mar-06	1906	HP5973F	Water	0603049-02, -07, -08
21-Mar-06	1011	HP5973F	Water	0603049-01, -04, -05, -03RE, -04RE
22-Mar-06	0848	HP5973F	Water	0603049-06
20-Mar-06	1020	HP5973J	Water	0603049-03

CONTINUING CALIBRATION - AVERAGE RESPONSE FACTOR

RRF = Ax*Is/Ais*STD

A_x = Area of compound
I_s = Amount (in ng) of internal standard

A_{is} = Area of associated internal standard
STD = Amount (in ng) of compound

Date:			**17-Mar-06**
Time:			**1906**
Instrument ID:			**HP5973F**
Compound:			**Trichloroethene**
RF-CCC			
A_x=	181246		
I_s=	125	0.322051366	
A_{is}=	562786		
STD=	125		
	avg RRF		**0.304**
	%D		**5.94%**

Date:			**21-Mar-06**
Time:			**1011**
Instrument ID:			**HP5973F**
Compound:			**Chloroform**
RF-CCC			
A_x=	242705		
I_s=	125	4.48034926	
A_{is}=	54171		
STD=	125		
	avg RRF		**4.026**
	%D		**11.29%**

Date:			**22-Mar-06**
Time:			**0848**
Instrument ID:			**HP5973F**
Compound:			**Tetrachloroethene**
RF-CCC			
A_x=	202800		
I_s=	125	0.53205444	
A_{is}=	381164		
STD=	125		
	avg RRF		**0.472**
	%D		**12.72%**

Date:			**20-Mar-06**
Time:			**1020**
Instrument ID:			**HP5973J**
Compound:			**1,1-DCE**
RF-CCC			
A_x=	92038		
I_s=	125	1.768737028	
A_{is}=	52036		
STD=	125		
	avg RRF		**2.128**
	%D		**-16.88%**

	YES	NO
CALCULATED VALUES MATCH REPORTED VALUES?	X	

	YES	NO
AMOUNTS INJECTED CONSISTENT THROUGHOUT ANALYTICAL SEQUENCE?	X	

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INTERNAL STANDARDS

	YES	NO	N/A
Form Present?	X		
All samples listed?	X		
Results agree with raw data? (Level IV only)			X(1)
Did laboratory spike project required internal standards?	X		
Are sample IS retention times within 30 seconds of daily ccal?	X		

List of Anomalies/Recommended Actions

X **No action required**

(1) LABORATORY DOES NOT LIST THE ACCEPTANCE RANGE.

ACCEPTANCE CRITERIA REFERENCE: NFG LL Org., June 2001

ACCEPTANCE LIMITS: -40% to +40% (of the response in the daily calibration check)

LIST ALL AREAS OUTSIDE ACCEPTANCE LIMITS

Sample ID	Lab ID	Internal Standard	IS Area	IS Out Low	IS Out High	Comments
						None

LIST ALL PRECEEDING INTERNAL STANDARDS AND ASSOCIATED SAMPLES

Calibration Date	Time	GCMS ID	Matrix	Associated Samples
17-Mar-06	1906	HP5973F	Water	0603049-02, -07, -08
21-Mar-06	1011	HP5973F	Water	0603049-01, -03 thru -05, -04RE
22-Mar-06	0848	HP5973F	Water	0603049-06
20-Mar-06	1020	HP5973J	Water	0603049-03RE

ACCEPTANCE LIMITS (LOW LEVEL VOCs):
(LIST INTERNAL STANDARDS SPIKED)

Calibration Date	Time	GCMS ID		Area CCAL	-40%	+40%
					0	0
17-Mar-06	1906	HP5973F	Dichloromethane-d2	67530	40518	94542
			Fluorobenzene	562786	337671.6	787900.4
			Chlorobenzene-d5	407639	244583.4	570694.6

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METHOD COMPLIANCE - VOCs

COMPLIANCE CRITERIA REFERENCE: EPA SW-846 METHOD 8260B

INSTRUMENT CALIBRATION

	YES	NO
Is the lowest ICAL standard at or below the DL for each analyte?	X	
Mean RRFs for Chloromethane, 1,1-Dichloroethane and Bromoform ≥ 0.10?	**	
Mean RRFs for Chlorobenzene and 1,1,2,2-Tetrachloroethane ≥ 0.30?	**	
%RSDs for 1,1-Dichloroethene, Chloroform, 1,2-Dichloropropane, Toluene, Ethylbenzene and Vinyl chloride ≤ 30%?	**	
Curve concstructed for all %RSD > 15%?	**	

List of Anomalies/Recommended Actions

X **No action required**

** CRITERIA DOES NOT APPLY FOR METHOD 524.2.

CONTINUING CALIBRATION VERIFICATION

	YES	NO
Is the CCV standard at the midpoint of the ICAL for each analyte?	X	
RRFs for Chloromethane, 1,1-Dichloroethane and Bromoform ≥ 0.10?	**	
RRFs for Chlorobenzene and 1,1,2,2-Tetrachloroethane ≥ 0.30?	**	
%Ds for 1,1-Dichloroethene, Chloroform, 1,2-Dichloropropane, Toluene, Ethylbenzene and Vinyl chloride ≤ 20%?	**	

MDL STUDY

	YES	NO	N/A
MDL values present in the package?		X	
Is MDL study provided?		X	
Study performed within 1 year of sample analysis?			X
MDLs support laboratory reporting limits? (If no, list)			X

Compound	Comments
	RL < 3X MDL
	RL < 3X MDL
	RL < 3X MDL
	RL < 3X MDL

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SAMPLE CALCULATION WORKSHEET - AVERAGE RESPONSE FACTOR

CALCULATION: ug/L=Ax*Is**Vt*DF*GPC/Ais*RRF*Vo*Vi

Sample ID: OC2-MW13B-W-0-201
Laboratory ID: 0603049-06

Compound: 1,1-DCE — **REPORTED VALUE: 0.2 ug/L** — Compound spectrum matches reference? YES: X, NO:

Ax=	8032	**0.229279952**	Area cmpd in sample
Is=	125		Amt internal standard, in ng
Vt=	1		Volume of extract, in uL
Df=	1		Dilution factor
GPC=	1		1 if GPC not done, 2 if GPC done
Ais=	66097		Area of internal standard
RRF=	2.65		RRF (average from curve)
Vi=	1		Volume of extract injected, in uL
Ws=	25		Volume of sample, in mL (or Wt in g)
D=	1		Dry-weight (1 if dry-weight not taken into acct)

Compound: Freon 113 — **REPORTED VALUE: 0.3 ug/L** — Compound spectrum matches reference? YES: X, NO:

Ax=	11657	**0.343919683**	Area cmpd in sample
Is=	125		Amt internal standard, in ng
Vt=	1		Volume of extract, in uL
Df=	1		Dilution factor
GPC=	1		1 if GPC not done, 2 if GPC done
Ais=	66097		Area of internal standard
RRF=	2.564		RRF (average from curve)
Vi=	1		Volume of extract injected, in uL
Ws=	25		Volume of sample, in mL (or Wt in g)
D=	1		Dry-weight (1 if dry-weight not taken into acct)

Compound: MTBE — **REPORTED VALUE: 1.3 ug/L** — Compound spectrum matches reference? YES: X, NO:

Ax=	52003	**1.345362401**	Area cmpd in sample
Is=	125		Amt internal standard, in ng
Vt=	1		Volume of extract, in uL
Df=	1		Dilution factor
GPC=	1		1 if GPC not done, 2 if GPC done
Ais=	66097		Area of internal standard
RRF=	2.924		RRF (average from curve)
Vi=	1		Volume of extract injected, in uL
Ws=	25		Volume of sample, in mL (or Wt in g)
D=	1		Dry-weight (1 if dry-weight not taken into acct)

Compound: 1,2-DCA — **REPORTED VALUE: 0.7 ug/L** — Compound spectrum matches reference? YES: X, NO:

Ax=	12293	**0.670133831**	Area cmpd in sample
Is=	125		Amt internal standard, in ng
Vt=	1		Volume of extract, in uL
Df=	1		Dilution factor
GPC=	1		1 if GPC not done, 2 if GPC done
Ais=	418815		Area of internal standard
RRF=	0.219		RRF (average from curve)
Vi=	1		Volume of extract injected, in uL
Ws=	25		Volume of sample, in mL (or Wt in g)
D=	1		Dry-weight (1 if dry-weight not taken into acct)

Compound: TCE — **REPORTED VALUE: 0.4 ug/L** — Compound spectrum matches reference? YES: X, NO:

Ax=	9158	**0.359645667**	Area cmpd in sample
Is=	125		Amt internal standard, in ng
Vt=	1		Volume of extract, in uL
Df=	1		Dilution factor
GPC=	1		1 if GPC not done, 2 if GPC done
Ais=	418815		Area of internal standard
RRF=	0.304		RRF (average from curve)
Vi=	1		Volume of extract injected, in uL
Ws=	25		Volume of sample, in mL (or Wt in g)
D=	1		Dry-weight (1 if dry-weight not taken into acct)

Compound: PCE — **REPORTED VALUE: 1.9 ug/L** — Compound spectrum matches reference? YES: X, NO:

Ax=	55040	**1.857340786**	Area cmpd in sample
Is=	125		Amt internal standard, in ng
Vt=	1		Volume of extract, in uL
Df=	1		Dilution factor
GPC=	1		1 if GPC not done, 2 if GPC done
Ais=	313917		Area of internal standard
RRF=	0.472		RRF (average from curve)
Vi=	1		Volume of extract injected, in uL
Ws=	25		Volume of sample, in mL (or Wt in g)
D=	1		Dry-weight (1 if dry-weight not taken into acct)

CALCULATED VALUES MATCH REPORTED VALUES? YES: X, NO:

SAMPLE CALCULATION WORKSHEET - TIC COMPOUNDS

CALCULATION: ug/L=Ax*Is**Vt*DF*GPC/Ais*RRF*Vo*Vi

Sample ID: OC2-MW15-W-1-199
Laboratory ID: 0603049-04
Compound: Ethane, -tetrachloro-di

REPORTED VALUE: 3.3 ug/L

	YES	NO
Compound spectrum matches reference?	X	

Ax=	659775	**3.289237534**	Area cmpd in sample
Is=	125		Amt internal standard, in ng
Vt=	1		Volume of extract, in uL
Df=	1		Dilution factor
GPC=	1		1 if GPC not done, 2 if GPC done
Ais=	1002930		Area of internal standard
RRF=	1		RRF (average from curve)
Vi=	1		Volume of extract injected, in uL
Ws=	25		Volume of sample, in mL (or Wt in g)
D=	1		Dry-weight (1 if dry-weight not taken into acct)

	YES	NO
CALCULATED VALUES MATCH REPORTED VALUES?	X	

IDENTIFICATION AND QUANTITATION

For Level IV calculate the results of all detects for project samples, and check RT windows.
Use the worksheets labeled "RT windows" and "calculation."

☐ **Qualifications from QuikVal reports are included herein (reason codes 001, 008, 009 and 010)**
☐ **Qualifications were not indicated in QuikVal reports.**

List all samples requiring qualification here:

Sample ID	Lab ID	Compound	Result	Lab Qualifier	Calc Check	Spectra Match?	RT meets Method Criteria	Qualifier	Reason Code
OC2-MW23D-W-5-196	0603049-01	Freon 113	0.2	J				**U**	**002 (EB)**
OC2-MW23D-W-5-196	0603049-01	Tetrachloroethene	0.2	J				**U**	**002 (EB)**
OC2-MW15-W-0-198	0603049-03	Naphthalene	ND					**UJ**	**003**
OC2-MW13B-W-0-201	0603049-06	Freon 113	0.3	J				**U**	**002 (EB)**
OC2-MW12-W-0-203	0603049-08	Ethyl acetate (TIC)	1.5	NJ				**U**	**002 (TB)**
OC2-MW12-W-0-203	0603049-08	Freon 113	0.9					**U**	**002 (EB)**
Method Blank	B6C0114-BLK1	Naphthalene	ND					**UJ**	**003**

☒ **All Level IV sample results were re-calculated and verified to be correctly reported by the laboratory.**
All TIC results that were reported on Form 1s were recalculated and verified to be correctly reported by the laboratory.

CONTINUED

QUALIFIED DATA CONTINUED

Qualifiers

U The analyte was analyzed for, but was not detected above the *reported sample quantitation limit.*

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. A minus sign (-) indicates the numerical value has a low bias. A plus sign (+) indicates the numerical value has a high bias.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified. Rejected results are not usable for any purpose.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

DataVal Reason Codes

001 Exceeded holding time.
002 Blank contamination.
003 Associated initial calibration showed elevated %RSD for compound.
004 Correlation coefficient < 0.995.
005 Average relative response factor < 0.05.
006 Associated continuing calibration showed elevated %D for compound.
007 Relative response factor < 0.05.
008 Surrogate recovery was outside limits.
009 Laboratory control sample recovery exceeded acceptance criteria.
010 Matrix spike recovery exceeded acceptance criteria.
011 The area of the internal standard exceeded acceptance criteria.
012 Retention time exceeded criteria for this compound.
013 Mass spectrum did not match the reference spectrum.
014 Tentatively identified compound (TIC).
015 Value exceeded the linear range of the instrument and was not re-analyzed.
016 Compounds/components co-elute.
017 Results reported below the quantitation limit.
018 Laboratory duplicate relative percent differences (RPD) outside acceptance criteria.
019 Field duplicate RPD outside acceptance criteria.
020 Percent difference between columns exceeded 25%.
021 Laboratory control sample RPD outside acceptance criteria.
022 Matrix spike sample RPD outside acceptance criteria.
023 Serial dilution percent difference outside acceptance criteria.
024 Retention time exceeded established window.
025 ICP Interference Check Sample had percent recoveries outside the 80%-120% criteria.
026 CRI/CRA (detection limit standard) failed acceptance criteria.
100 Other.

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Data Validation Worksheet
Gas Chromatography/Mass Spectrometry

Project Name: Omega Chemical OU2
Project Number: R06S31
Analysis: 1,4-Dioxane
Method Number: 8270C
Laboratory Name: USEPA Region 9 Laboratory

Performed by/Date: EJN 5-29-06

Reviewed by/Date: APJ 6-23-06

Qualified Data? NO__X__ YES____, see page(s)____

SDG Number	Date Sampled	#Samples/Matrix	Validation Level
06069D	9-, 13- & 14-Mar-06	15 Waters	IV
06075B	15-Mar-06	5 Waters	IV

Data review was performed using the following documents as guidelines (check all that are applicable):

[X] USEPA CLP National Functional Guidelines for Organic Data Review (NFG Org.), October 1999
[ ] USEPA CLP National Functional Guidelines for Low Concentration Organic Data Review (NFG LL Org.), June 2001
[X] Project guidance document(s): **EPA Region IX Laboratory SOP #315**
[ ] Analysis method

[ ] **Validated using QuikVal** (See attached QuikVal sheets for Holding Time, Surrogate, LCS and MS/MSD evaluation)

ITEMS CHECKED - LEVEL III (Where Applicable)
Sample Receiving
Electronic Data Deliverables
Case Narrative
Holding Times
Instrument Run Logs
Initial Instrument Calibration
Continuing Instrument Calibration
Method Blanks
Surrogates
Laboratory Control Samples
Matrix Spikes/Matrix Spike Duplicates
Field Duplicates
Field QC Blanks
Reporting Limits

ITEMS CHECKED - LEVEL IV (Where Applicable)
Sample Receiving
Electronic Data Deliverables
Case Narrative
Holding Times
Instrument Run Logs
GC/MS Instrument Performance
Initial Instrument Calibration
Continuing Instrument Calibration
Method Blanks
Surrogates
Laboratory Control Samples
Matrix Spikes/Matrix Spike Duplicates
Field Duplicates
Field QC Blanks

ITEMS CHECKED - LEVEL IV continued (Where Applicable)
Reporting Limits
Internal Standards
Raw Data
Re-calculation of reported results
Extraction Logs
Tentatively Identified Compounds
System Performance

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SAMPLE RECEIVING

	YES	NO	N/A
All COC forms relinquished and received with signature/date?	X		
Reported sample IDs match those listed on COC?	X		
Reported analyses/methods match those listed on COC?	X		
Lab report includes results for every sample/analysis as listed on COC?	X		
Cooler Receipt form present?	X		
Cooler Receipt form filled in completely and signed?	X		
Temperature recorded from:	Not noted		
Recorded temperature between 2C and 6C?	X		
Bubbles present in VOAs?			X

List of Anomalies/Recommended Actions

X **No action required**

ELECTRONIC DATA DELIVERABLES

	YES	NO	N/A
Are EDDs included with the data package?	X		
Does client require EDD check against hardcopy?		X	
Were all EDDs verified against hardcopy results?			X
Did all EDD results match reported results?			X
Were anomalies noted?			X
Was the project office/lab notified?			X

List of Anomalies/Recommended Actions

No action required

CLIENT NOTIFICATION

Add Memo Items of Missing Info./Corrections Below	Response Received? YES	NO
X **There were no memo items for this project.**		

CASE NARRATIVES/LABORATORY REPORT FOOTNOTES

	YES	NO	N/A
Case Narrative present in data package?		X	
Are anomalies noted in the CN? (If yes, place an 'X' below)			X
Are anomalies noted in report footnotes? (If yes, place an 'X' below)		X	

THE FOLLOWING ANOMALIES WERE NOTED IN CASE NARRATIVES/LABORATORY REPORT FOOTNOTES:

Sample Delivery Group (SDG) Number:						
Missed extraction/analysis holding time						
Surrogate failure						
Method blank contamination						
Instrument blank contamination						
LCS and/or LCS RPD failure						
MS/MSD and/or MS/MSD RPD failure						
Laboratory duplicate failure						
Compound identification anomaly						
Elevated RSD in the ICAL						
Other ICAL anomalies						
Elevated %D in the CCV						
Other CCV anomalies						
Internal standard failure						
Value exceeding the linear range of the instrument						
Co-elution						
Result reported below the quantition limit						
Other notations (list below)						

List of Anomalies

X **No anomalies were noted in the case narrative(s)/laboratory report footnotes included with this project.**

HOLDING TIMES

Enter Date as mo/day/year
DBE and DBA is calculated automatically

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received	Preservation & Temp	Extraction Date	Analysis Date	DBE	DBA	Comments
OC2-MW11-W-0-176 (FD1)	0603035-02	Water	9-Mar-06	10-Mar-06	2C	13-Mar-06	16-Mar-06	4	3	
OC2-MW11-W-1-177 (FD1)	0603035-03	Water	9-Mar-06	10-Mar-06	2C	13-Mar-06	15-Mar-06	4	2	
OC2-MW10-W-0-179	0603035-05	Water	9-Mar-06	10-Mar-06	2C	13-Mar-06	15-Mar-06	4	2	
OC2-MW3-W-0-180	0603035-06	Water	9-Mar-06	10-Mar-06	2C	13-Mar-06	15-Mar-06	4	2	
OC2-MW17B-W-0-181	0603041-01	Water	13-Mar-06	14-Mar-06	2C, 3C	15-Mar-06	16-Mar-06	2	1	
OC2-MW17C-W-5-183 (QC)	0603041-03	Water	13-Mar-06	14-Mar-06	2C, 3C	15-Mar-06	16-Mar-06	2	1	
OC2-MW16A-W-0-184	0603041-04	Water	13-Mar-06	14-Mar-06	2C, 3C	15-Mar-06	16-Mar-06	2	1	
OC2-MW16B-W-0-185	0603041-05	Water	13-Mar-06	14-Mar-06	2C, 3C	15-Mar-06	16-Mar-06	2	1	
OC2-MW16C-W-0-188	0603046-02	Water	14-Mar-06	15-Mar-06	4C	16-Mar-06	17-Mar-06	2	1	
OC2-MW18A-W-0-189 (FD2)	0603046-03	Water	14-Mar-06	15-Mar-06	4C	16-Mar-06	17-Mar-06	2	1	
OC2-MW18A-W-1-190 (FD2)	0603046-04	Water	14-Mar-06	15-Mar-06	4C	16-Mar-06	17-Mar-06	2	1	
OC2-MW18B-W-0-192	0603046-06	Water	14-Mar-06	15-Mar-06	4C	16-Mar-06	17-Mar-06	2	1	
OC2-MW18C-W-0-193	0603046-07	Water	14-Mar-06	15-Mar-06	4C	16-Mar-06	19-Mar-06	2	3	
OC2-MW23B-W-0-194	0603046-08	Water	14-Mar-06	15-Mar-06	4C	16-Mar-06	19-Mar-06	2	3	
OC2-MW23C-W-0-195	0603046-09	Water	14-Mar-06	15-Mar-06	4C	16-Mar-06	19-Mar-06	2	3	
OC2-MW23D-W-5-196	0603049-01RE1	Water	15-Mar-06	16-Mar-06	3C, 4C	21-Mar-06	22-Mar-06	6	1	
OC2-MW15-W-0-198	0603049-03RE1	Water	15-Mar-06	16-Mar-06	3C, 4C	21-Mar-06	22-Mar-06	6	1	
OC2-MW15-W-1-199	0603049-04RE1	Water	15-Mar-06	16-Mar-06	3C, 4C	21-Mar-06	22-Mar-06	6	1	
OC2-MW13B-W-0-201	0603049-06	Water	15-Mar-06	16-Mar-06	3C, 4C	20-Mar-06	21-Mar-06	5	1	
OC2-MW12-W-0-203	0603049-08	Water	15-Mar-06	16-Mar-06	3C, 4C	20-Mar-06	21-Mar-06	5	1	

DBE = Days before extraction (extraction date - collection date)
DBA = Days before analysis (analysis date - extraction date)

ACCEPTANCE CRITERIA:

	Aqueous
DBA - Volatiles	14
DBE - Semi-volatiles	**7**
DBA - Semi-volatiles	**40**

	Solid
DBA - Volatiles	14
DBE - Semi-volatiles	14
DBA - Semi-volatiles	40

Recommended Actions

[X] **No action required**

SURROGATE RECOVERIES

	YES	NO	N/A
Form Present?	Form I		
All samples listed?	X		
Results agree with raw data? (Level IV)	X		
Did laboratory spike project required surrogate(s)?	X		

ACCEPTANCE CRITERIA REFERENCE: EPA Region IX Laboratory SOP #315

ACCEPTANCE LIMITS:
(LIST SURROGATES SPIKED)

1,4-Dioxane-d8	50-130%

List of Anomalies/Recommended Actions

X **No action required**

*If sample DF > or = 5X, no qualification is required.

LIST ALL RECOVERIES OUTSIDE PROJECT LIMITS

Sample ID	Laboratory ID	Surrogate	Original Recovery	Re-run/ Re-ext'd Recovery	Sample DF*	Comments
						None

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SURROGATE RECOVERIES - AVERAGE RESPONSE FACTOR

CALCULATIONS:
ug/L=Ax*Is**Vt*DF*GPC/Ais*RRF*Vo*Vi
ug/Kg=Ax*Is*Vt*Df*GPC/Ais*RRF*Vi*Ws*D

Sample ID: OC2-MW11-W-0-176
Laboratory ID: 0603035-02

		Surrogate: 1,4-Dioxane-d8	
Ax=	25185	**4.41404673**	Area cmpd in sample
Is=	20		Amt IS, in ng
Vt=	1		Volume of extract, in uL
Df=	1		Dilution factor
GPC=	1		1 if GPC not done, 2 if GPC done
Ais=	272346		Area IS
RRF=	0.419		RRF (average from curve)
Vi=	1		Volume of extract injected, in uL
Ws=	1		Volume of sample, in mL (or Wt in g)
D=	1		Dry-weight (1 if not taken into acct)
%Recovery		**88**	

	YES	**NO**
CALCULATED VALUES MATCH REPORTED VALUES?	**X**	

METHOD BLANK ANALYSES

	YES	NO	N/A
Performed for each matrix?	X		
Performed for each GCMS system?	X		
Performed for each extraction batch?	X		
Performed for each analysis batch?			X
Form Present?	X		
Did laboratory take appropriate corrective action for blank contamination greater than project acceptance criteria?			X

ACCEPTANCE CRITERIA REFERENCE: Client

ACCEPTANCE LEVEL FOR CONTAMINATION: <RL

LIST CONTAMINANTS DETECTED IN METHOD BLANKS

Blank ID	Matrix	Compound	Concen-tration	Units	5X (or 10X)	Comments
						None

LIST ALL METHOD BLANKS AND THEIR ASSOCIATED SAMPLES

Blank ID	Matrix	Associated Samples
B6C0086-BLK1	Water	OC2-MW11-W-0-176, OC2-MW11-W-1-177, OC2-MW10-W-0-179 and OC2-MW3-W-0-180
B6C0104-BLK1	Water	OC2-MW17B-W-0-181, OC2-MW17C-W-5-183, OC2-MW16A-W-0-184 and OC2-MW16B-W-0-185
B6C0112-BLK1	Water	OC2-MW16C-W-0-188, OC2-MW18A-W-0-189, OC2-MW18A-W-1-190, OC2-MW18B-W-0-192, OC2-MW18C-W-0-193, OC2-MW23B-W-0-194 and OC2-MW23C-W-0-195
B6C0128-BLK1	Water	OC2-MW13B-W-0-201 and OC2-MW12-W-0-203
B6C0145-BLK1	Water	OC2-MW23D-W-5-196, OC2-MW15-W-0-198 and OC2-MW15-W-1-199

List of Anomalies/Recommended Actions

X **No action required**

- Methylene chloride, acetone, and 2-butanone are considered common volatile laboratory contaminants (use 10X rule).
- Phthalates are considered common semi-volatile laboratory contaminants (use 10X rule).

(1) Sample results greater than 5X (or 10X) blank amount.
(2) Sample results non-detect.
(3) No associated samples.

FIELD QC BLANK ANALYSES

TRIP BLANK ANALYSES

	YES	NO	N/A
Trip Blank analyzed?			X
Form Present?			X

FIELD BLANK ANALYSES

	YES	NO	N/A
Field Blank analyzed?		X	
Form Present?			X

EQUIPMENT BLANK ANALYSES

	YES	NO	N/A
Equipment/Rinse Blank analyzed?		X	
Form Present?			X

LIST CONTAMINANTS DETECTED IN TRIP, FIELD, AND EQUIPMENT BLANKS

Blank ID	Laboratory ID	Matrix	Compound	Concen-tration	Units	5X (or 10X)	Comments

List of Anomalies/Recommended Actions

☐ **No action required**

- Methylene chloride, acetone, and 2-butanone are considered common volatile laboratory contaminants (use 10X rule).
- Phthalates are considered common semi-volatile laboratory contaminants (use 10X rule).

(1) Sample results greater than 5X (or 10X) blank amount.
(2) Sample results non-detect.
(3) No associated samples.

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LABORATORY CONTROL SAMPLES (LCS/LCSD)

	YES	NO	NA
Form Present?	X		
%R and RPD within limits?	X		
Spike list match project required list?	X		
Results agree with raw data? (Level IV only)	X		

% RECOVERY AND RPD CALCULATION CHECK
Enter analysis date (mo/day/year), spike amount, LCS result, and LCSD result.
% Recoveries and RPD are automatically calculated.

Analysis Date	Spike Compound	Spike Conc	LCS Result	LCSD Results	LCS %R	LCSD %R	RPD	Agree with lab?	QC Batch Number
15-Mar-06	1,4-Dioxane	10	11	NA	110.0%	NA	NA	YES	B6C0086
16-Mar-06	1,4-Dioxane	10	9.4	NA	94.0%	NA	NA	YES	B6C0104
17-Mar-06	1,4-Dioxane	20	20.7	NA	103.5%	NA	NA	YES	B6C0112
21-Mar-06	1,4-Dioxane	10	10.5	NA	105.0%	NA	NA	YES	B6C0128
22-Mar-06	1,4-Dioxane	10	9.86	NA	98.6%	NA	NA	YES	B6C0145

ACCEPTANCE CRITERIA REFERENCE: EPA Region 9 Laboratory SOP 315

	%R	RPD
ACCEPTANCE LIMITS:	50-130	NA

LIST ALL RECOVERIES OUTSIDE PROJECT LIMITS

LCS ID	Spike Compound	% Recovery	RPD	Comments
				None

Recommended Actions

X **No action required**

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MATRIX SPIKE/MATRIX SPIKE DUPLICATE ANALYSIS(MS/MSD)

	YES	NO	NA
Form Present?	X		
%R and RPD within limits?	X		
Spike list match project required list?	X		
Results agree with raw data? (Level IV only)	X		

% RECOVERY AND RPD CALCULATION CHECK
Enter analysis date (mo/day/year), spike amount, sample result, MS result, and MSD result
IF sample result is ND, enter "0". % Recoveries and RPD are automatically calculated.

Analysis Date	Spiked Sample	Spike Compound	Spike Conc	Sample Results	MS Result	MSD Results	MS %R	MSD %R	RPD	Agree with lab?	QC Batch Number
16-Mar-06	0603041-03	1,4-Dioxane	9.57	0	9.39	9.06	98.12%	94.67%	3.58%	YES*	B6C0104
22-Mar-06	0603049-01	1,4-Dioxane	10	0	9.71	10.4	97.10%	104.00%	6.86%	YES	B6C0145

ACCEPTANCE CRITERIA REFERENCE: EPA Region 9 Laboratory SOP 315

	%R	RPD
ACCEPTANCE LIMITS:	50-130	30

LIST ALL RECOVERIES OUTSIDE PROJECT LIMITS

Sample ID	Laboratory ID	Spike Compound	% Recovery	RPD	Mx DF > or = 5X?	4X Rule Applies?	Comments
							None

Recommended Actions

X	**No action required**
	Laboratory reported RPDs based on % recoveries; appropriate method is to calculate RPDs based on concentrations.
X*	**Spike levels differed for MS and MSD.**
	No action is taken on MS/MSD data alone unless specified in project plan.
	Qualify only the parent sample unless project plan states otherwise.

*** WHERE THE MS AND MSD WERE SPIKED AT DIFFERENT LEVELS, THE AVERAGE IS ENTERED ABOVE.**

(1) 4X Rule.
(2) Dilution factor ≥ 5X.
(3) The parent sample was associated with an unrelated site.

Data Validation Worksheet
Gas Chromatography/Mass Spectrometry

FIELD DUPLICATES

	YES	NO
Are original/field duplicate pairs identifiable?	X	
%RPD within project acceptance limits?	X	

RPD CALCULATION CHECK

IF sample result is ND, enter "0". RPD is automatically calculated

Original Sample ID	Original Lab ID	Matrix	Compound	Orig. Results	Duplicate Sample ID	Duplicate Lab ID	Dup. Results	RPD	Absolute Difference	RL	Meets Criteria?
OC2-MW11-W-0-176	0603035-02	Water	1,4-Dioxane	ND	OC2-MW11-W-1-177	0603035-03	ND	NA	NA		YES
OC2-MW18A-W-0-189	0603046-03	Water	1,4-Dioxane	ND	OC2-MW18A-W-1-190	0603046-04	ND	NA	NA		YES
OC2-MW15-W-0-198	0603049-03	Water	1,4-Dioxane	70	OC2-MW15-W-1-199	0603049-04	74	-5.6%	4		YES

ACCEPTANCE CRITERIA REFERENCE: EPA Region IX Laboratory SOP #315

ACCEPTANCE LIMITS:

	20%
CRITERIA FOR AQUEOUS RESULTS AT OR NEAR THE RL	+/- 1 X RL
CRITERIA FOR SOIL RESULTS AT OR NEAR THE RL	+/- 2 X RL

LIST ALL RPD OUTSIDE PROJECT LIMITS (DO NOT INCLUDE VALUES < RL)

Original Sample ID	Original Lab ID	Compound	RPD	Comments
				None

Recommended Actions

X **No action required**

NC: Not calculated. The absolute difference between the sample result and the duplicate sample result is less than the reporting limit.
N/A: Not analyzed
NA: Not applicable. Calculation of the relative percent difference between the sample result and the duplicate sample result is not applicable.

REPORTING LIMITS

	YES	NO
Are the project-specified reporting limits (RLs) met for all project samples?	X	
Are the RLs for all soil samples raised by dry weight correction?	NA	
Are the RLs raised due to sample dilutions?		X
Was dilution required due to high levels of NON-TARGET analytes?		X
Was dilution required due to high levels of TARGET analytes?		X
Are any samples non-detect at a raised RL? (if so, list below)		X

REPORTING LIMITS REFERENCE: EPA Region IX Laboratory SOP #315

If NO, then list:

Compound	Samples Affected	Lab RL	Project RL	Comments
				None

ANALYTE LIST

	YES	NO
Does the reported target analyte list match the project required list?	X	

ANALYTE LIST REFERENCE: Chain of Custody

If NO, then list extra or missing compounds:

Compound	Missing?	Extra?	Comments
			None

TENTATIVELY IDENTIFIED COMPOUNDS

	YES	NO
All appropriate peaks searched and reported?	NA	
Any TICs found in both samples and blanks?	NA	
Reasonable identifications reported?	NA	
Any TCL compounds reported as TICs?	NA	

Recommended Actions

☐ **No action required**

Artifacts, unknowns, and siloxanes are not included above.

SYSTEM PERFORMANCE

	YES	NO
Were standard and sample chromatograms provided for all positive results?	X	
Chromatograms free of abrupt baseline shift?	X	
Chromatograms free of high background?	X	
Chromatograms free of baseline rise?	X	
Chromatograms free of extraneous peaks?	X	
Peak resolution good?	X	
Peaks free of tailing?	X	

Recommended Actions

☒ **No action required**

GC/MS INSTRUMENT PERFORMANCE CHECK

	YES	NO
Performed for all initial calibrations?	X	
Performed for all continuing calibrations and samples?	X	
Performed every 12 hours?	X	
BFB/**DFTPP** criteria within method limits?	X	
Concentration of BFB/**DFTPP** injected:	**50 ng**	

List of Anomalies/Recommended Actions

X **No action required**

LIST ALL BFB/DFTPP INJECTIONS

Date	GC/MS ID	Injection time	Ratio Check (Level IV only)	Transcript Errors (L IV)	Associated Samples
14-Feb-06	HP5973I	0809	**OK**	**NONE**	ICAL
15-Mar-06	HP5973I	1050			0603035-03, -05, -06
15-Mar-06	AG5973L	1532			ICAL
16-Mar-06	AG5973L	1209	**OK**	**NONE**	0603035-02, 0603041-01, -03 thru -05
17-Mar-06	HP5973I	0848			ICAL, 0603046-02 thru -04, -06
19-Mar-06	HP5973I	0729			0603046-07 thru -09
15-Mar-06	AG5973L	1532			ICAL
21-Mar-06	AG5973L	1350			0603049-06, -08
22-Mar-06	AG5973L	1500			0603049-01, -03, -04

LIST ALL BFB/**DFTPP** OUTSIDE CRITERIA (LEVEL IV ONLY)

Date	GC/MS ID	Injection time	Ion Abund Outside Criteria	Comments
				None

GC/MS INSTRUMENT PERFORMANCE CHECK - DFTPP

Date:	**14-Feb-06**	
Injection Time:	**0809**	
Instrument ID:	**HP5973I**	
	Enter raw Abund here	Calc Automatic
51=	193560	39.36%
68=	0	0.00%
69=	206328	41.96%
70=	1029	0.50%
127=	242002	49.22%
197=	475	0.10%
198=	491712	100.00%
199=	32749	6.66%
275=	137778	28.02%
365=	18150	3.69%
441=	60821	**12.37%**
442=	419200	85.25%
443=	82312	19.64%

Date:	**16-Mar-06**	
Injection Time:	**1209**	
Instrument ID:	**AG5973L**	
	Enter raw Abund here	Calc Automatic
51=	203728	45.04%
68=	0	0.00%
69=	206941	45.75%
70=	1122	0.54%
127=	248512	54.95%
197=	0	0.00%
198=	452288	100.00%
199=	29938	6.62%
275=	112594	24.89%
365=	18289	4.04%
441=	75573	**16.71%**
442=	469738	103.86%
443=	91800	19.54%

	YES	NO
CALCULATED VALUES MATCH REPORTED VALUES?	X*	

*** LABORATORY REPORTS MASS 441 RELATIVE TO MASS 443, RATHER THAN MASS 198.**

INITIAL CALIBRATION

	YES	NO
Performed before sample analysis?	X	
Calibration for each matrix?	X	
Calibration for each instrument?	X	
Any Mean RRFs below project limits?		X

ACCEPTANCE CRITERIA REFERENCE: NFG Org., October 1999

ACCEPTANCE LIMITS: Mean RRF 0.05

LIST ALL MEAN RRF THAT DO NOT MEET ACCEPTANCE CRITERIA:

Date	GC/MS ID	Compound	Mean RRF	Comments
				None

ACCEPTANCE CRITERIA REFERENCE: NFG Org., October 1999

ACCEPTANCE LIMITS: %RSD 30
CORR COEF (r) 0.995

LIST ALL %RSD AND CORRELATION COEFFICIENTS THAT DO NOT MEET ACCEPTANCE CRITERIA:

Calibration Date	GCMS ID	Matrix	Compound	Corr Coefficient or % RSD	Comments
					None

LIST ALL ICAL AND ASSOCIATED SAMPLES

Calibration Date	GCMS ID	Matrix	Associated Samples
14-Feb-06	HP5973I	Water	0603035-03, -05, -06
15-Mar-06	AG5973L	Water	0603035-02, 0603041-01, -03 thru -05
17-Mar-06	HP5973I	Water	0603046-02 thru -04, -06, 0603046-07 thru -09
15-Mar-06	AG5973L	Water	0603049-01, -03, -04, -06, -08

List of Anomalies/Recommended Actions

X **No action required**

INITIAL CALIBRATION - AVERAGE RESPONSE FACTOR

RRF = Ax*Is/Ais*STD **Ax = Area of compound; Is = Amount (in ng) of internal standard;**
Ais= Area of associated internal standard; STD = Amount (in ng) of compound

Date:	**14-Feb-06**	**15-Mar-06**	**17-Mar-06**
Instrument ID:	**HP5973I**	**AG5973L**	**HP5973I**
Compound:	**1,4-Dioxane**	**1,4-Dioxane**	**1,4-Dioxane**
RF1			
A_x=	17021 RRF	788243 RRF	1371763 RRF
I_s=	5 1.441309465	5 1.573163479	5 1.442794667
A_{is}=	59047	31316	59423
STD=	1	80	80
RF2			
A_x=	29000 RRF	347394 RRF	667420 RRF
I_s=	5 1.219840495	5 1.507734106	5 1.443732046
A_{is}=	59434	28801	57786
STD=	2	40	40
RF3			
A_x=	148606 RRF	222608 RRF	356727 RRF
I_s=	5 1.22112477	5 1.51466986	5 1.432132419
A_{is}=	60848	36742	62272
STD=	10	20	20
RF4			
A_x=	278545 RRF	109028 RRF	180998 RRF
I_s=	5 1.279819338	5 1.321871969	5 1.344630334
A_{is}=	54411	41240	67304
STD=	20	10	10
RF5			
A_x=	557701 RRF	21985 RRF	39519 RRF
I_s=	5 1.298573597	5 1.616211368	5 1.514300385
A_{is}=	53684	34007	65243
STD=	40	2	2
RF6			
A_x=	1043246 RRF	13362 RRF	20793 RRF
I_s=	5 1.299094957	5 1.690579215	5 1.621665887
A_{is}=	50191	39519	64110
STD=	80	1	1
AVG. CF	**1.293293771**	**1.537371666**	**1.466542623**
SD	**0.080938847**	**0.125541373**	**0.09324697**
%RSD=	**6.258349724**	**8.165974174**	**6.358285699**

	YES	NO
CALCULATED VALUES MATCH REPORTED VALUES?	X	

	YES	NO
AMOUNTS INJECTED CONSISTENT THROUGHOUT ANALYTICAL SEQUENCE?	X	

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DAILY CALIBRATION CHECK

RUN LOGS

	YES	NO	N/A
Run logs present in data package?	X		
All samples located on run logs?	X		
All dilutions located on run logs?			X
Are anomalies noted by the analyst?		X	

PREP LOGS

	YES	NO	N/A
Prep logs present in data package?	X		
All samples located on prep logs?	X		
All dilutions located on prep logs?			X
Are anomalies noted by the analyst?		X	

CONTINUING CALIBRATION

	YES	NO	N/A
Performed before sample analysis?	X		
Performed for each day of analysis?	X		
Performed for each instrument?	X		
Raw data agree with forms? (Level IV only)	X		
Any Daily RRFs below project limits?		X	

ACCEPTANCE CRITERIA REFERENCE: NFG Org., October 1999

ACCEPTANCE LIMITS: RRF 0.05

LIST ALL DAILY RRF THAT DO NOT MEET ACCEPTANCE CRITERIA:

Calibration Date	Time	GCMS ID	Compound	RRF	Comments
					None

ACCEPTANCE CRITERIA REFERENCE: NFG Org., October 1999

ACCEPTANCE LIMITS: %D 25

LIST ALL %D THAT DO NOT MEET ACCEPTANCE CRITERIA (DO NOT INCLUDE SURROGATE %D FAILURES):

Calibration Date	Time	GCMS ID	Matrix	Compound	%D	CCV Out Low	CCV Out High	Comments
								None

List of Anomalies/Recommended Actions

X **No action required**

QL STANDARDS WERE ANALYZED NEAR THE BEGINNING OF EACH ANALYTICAL RUN. 1,4-DIOXANE RECOVERED BETWEEN 50% AND 150% IN ALL QL STANDARDS.

CONTINUED

DAILY CALIBRATION CHECK CONTINUED

LIST ALL PRECEEDING CCVs AND ASSOCIATED SAMPLES

Calibration Date	Time	GCMS ID	Matrix	Associated Samples
15-Mar-06	1107	HP5973I	Water	0603035-03, -05, -06
16-Mar-06	1229	AG5973L	Water	0603035-02, 0603041-01, -03 thru -05
17-Mar-06	1011	HP5973I	Water	0603046-02 thru -04, -06
19-Mar-06	0746	HP5973I	Water	0603046-07 thru -09
21-Mar-06	1444	AG5973L	Water	0603049-06, -08
22-Mar-06	1622	AG5973L	Water	0603049-01, -03, -04

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CONTINUING CALIBRATION - AVERAGE RESPONSE FACTOR

RRF = Ax*Is/Ais*STD

A_x = Area of compound
I_s = Amount (in ng) of internal standard

A_{is} = Area of associated internal standard
STD = Amount (in ng) of compound

Date:			**15-Mar-06**
Time:			**1107**
Instrument ID:			**HP5973I**
Compound:			**1,4-Dioxane**
RF-CCC			
A_x=	368519		
I_s=	5	1.32860923	
A_{is}=	69343		
STD=	20		
	avg RRF		**1.293**
	%D		**2.75%**

Date:			**16-Mar-06**
Time:			**1229**
Instrument ID:			**AG5973L**
Compound:			**1,4-Dioxane**
RF-CCC			
A_x=	220304		
I_s=	5	1.52126837	
A_{is}=	36204		
STD=	20		
	avg RRF		**1.537**
	%D		**-1.02%**

Date:			**17-Mar-06**
Time:			**1011**
Instrument ID:			**HP5973I**
Compound:			**1,4-Dioxane**
RF-CCC			
A_x=	356727		
I_s=	5	1.43213242	
A_{is}=	62272		
STD=	20		
	avg RRF		**1.467**
	%D		**-2.38%**

Date:			**19-Mar-06**
Time:			**0746**
Instrument ID:			**HP5973I**
Compound:			**1,4-Dioxane**
RF-CCC			
A_x=	410059		
I_s=	5	1.42322296	
A_{is}=	72030		
STD=	20		
	avg RRF		**1.467**
	%D		**-2.98%**

Date:			**21-Mar-06**
Time:			**1444**
Instrument ID:			**AG5973L**
Compound:			**1,4-Dioxane**
RF-CCC			
A_x=	238609		
I_s=	5	1.5626408	
A_{is}=	38174		
STD=	20		
	avg RRF		**1.537**
	%D		**1.67%**

Date:			**22-Mar-06**
Time:			**1622**
Instrument ID:			**AG5973L**
Compound:			**1,4-Dioxane**
RF-CCC			
A_x=	188982		
I_s=	5	1.53404442	
A_{is}=	30798		
STD=	20		
	avg RRF		**1.537**
	%D		**-0.19%**

	YES	**NO**
CALCULATED VALUES MATCH REPORTED VALUES?	**X**	

	YES	**NO**
AMOUNTS INJECTED CONSISTENT THROUGHOUT ANALYTICAL SEQUENCE?	**X**	

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INTERNAL STANDARDS

	YES	NO	N/A
Form Present?	X(1)		
All samples listed?	X		
Results agree with raw data? (Level IV only)	X		
Did laboratory spike project required internal standards?	X		
Are sample IS retention times within 30 seconds of daily ccal?	X		

List of Anomalies/Recommended Actions

X **No action required**

(1) FORM WAS MISSING FOR SAMPLES 0603046-07 THRU -09; INFORMATION WAS OBTAINED FROM THE RAW DATA.

ACCEPTANCE CRITERIA REFERENCE: NFG Org., October 1999

ACCEPTANCE LIMITS: -50% to +100% (of the response in the daily calibration check)

LIST ALL AREAS OUTSIDE ACCEPTANCE LIMITS

Sample ID	Lab ID	Internal Standard	IS Area	IS Out Low	IS Out High	Comments
						None

LIST ALL PRECEEDING INTERNAL STANDARDS AND ASSOCIATED SAMPLES

Calibration Date	Time	GCMS ID	Matrix	Associated Samples
15-Mar-06	1107	HP5973I	Water	0603035-03, -05, -06
16-Mar-06	1229	AG5973L	Water	0603035-02, 0603041-01, -03 thru -05
17-Mar-06	1011	HP5973I	Water	0603046-02 thru -04, -06
19-Mar-06	0746	HP5973I	Water	0603046-07 thru -09
21-Mar-06	1444	AG5973L	Water	0603049-06, -08
22-Mar-06	1622	AG5973L	Water	0603049-01, -03, -04

ACCEPTANCE LIMITS:
(LIST INTERNAL STANDARDS SPIKED)

Calibration Date	Time	GCMS ID		Area CCAL	-50%	+100%
					0	0
					0	0
					0	0
15-Mar-06	1107	HP5973I	**1,4-Dioxane-d8**	69343	34671.5	138686

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METHOD COMPLIANCE - SVOCs

COMPLIANCE CRITERIA REFERENCE: EPA SW-846 METHOD 8270C

INSTRUMENT CALIBRATION

	YES	NO
Is the lowest ICAL standard at or below the DL for each analyte?	X	
Mean RRFs for N-nitroso-di-n-propylamine, Hexachlorocyclopentadiene, 2,4-Dinitrophenol and 4-Nitrophenol ≥ 0.050?	X	
%RSDs for Acenaphthene, 1,4-Dichlorobenzene, Hexachlorobutadiene, Diphenylamine, Di-n-octyl phthalate, Fluoranthene, Benzo(a)pyrene, 4-Chloro-3-methylphenol, 2,4-Dichlorophenol, 2-Nitrophenol, Phenol, Pentachlorophenol and 2,4,6-Trichlorophenol ≤ 30%?	X	

List of Anomalies/Recommended Actions

X No action required

CONTINUING CALIBRATION VERIFICATION

	YES	NO
Is the CCV standard at the midpoint of the ICAL for each analyte?	X	
RRFs for N-nitroso-di-n-propylamine, Hexachlorocyclopentadiene, 2,4-Dinitrophenol and 4-Nitrophenol ≥ 0.050?	X	
%Ds for Acenaphthene, 1,4-Dichlorobenzene, Hexachlorobutadiene, Diphenylamine, Di-n-octyl phthalate, Fluoranthene, Benzo(a)pyrene, 4-Chloro-3-methylphenol, 2,4-Dichlorophenol, 2-Nitrophenol, Phenol, Pentachlorophenol and 2,4,6-Trichlorophenol ≤ 20%?	X	

MDL STUDY

	YES	NO	N/A
MDL values present in the package?		X	
Is MDL study provided?		X	
Study performed within 1 year of sample analysis?			X
MDLs support laboratory reporting limits? (If no, list)			X

Compound	Comments
	RL < 3X MDL
	RL < 3X MDL
	RL < 3X MDL
	RL < 3X MDL

SAMPLE CALCULATION WORKSHEET - AVERAGE RESPONSE FACTOR

CALCULATION: ug/L=Ax*Is**Vt*DF*GPC/Ais*RRF*Vo*Vi

Sample ID: OC2-MW23C-W-0-195
Laboratory ID: 0603046-09
Compound: 1,4-Dioxane

	YES	NO
REPORTED VALUE: 38 ug/L		
Compound spectrum matches reference?	X	

Ax=	574183	**37.5259681**	Area cmpd in sample
Is=	5		Amt internal standard, in ng
Vt=	1000		Volume of extract, in uL
Df=	1		Dilution factor
GPC=	1		1 if GPC not done, 2 if GPC done
Ais=	49943		Area of internal standard
RRF=	1.467		RRF (average from curve)
Vi=	1		Volume of extract injected, in uL
Ws=	1044.2		Volume of sample, in mL (or Wt in g)
D=	1		Dry-weight (1 if dry-weight not taken into acct)

	YES	NO
CALCULATED VALUES MATCH REPORTED VALUES?	X	

IDENTIFICATION AND QUANTITATION

For Level IV calculate the results of all detects for project samples, and check RT windows.
Use the worksheets labeled "RT windows" and "calculation."

☐ **Qualifications from QuikVal reports are included herein (reason codes 001, 008, 009 and 010)**
☐ **Qualifications were not indicated in QuikVal reports.**

List all samples requiring qualification here:

Sample ID	Lab ID	Compound	Result	Lab Qualifier	Calc Check	Spectra Match?	RT meets Method Criteria	Qualifier	Reason Code
							NO QUALIFICATION		

☒ **All Level IV sample results were re-calculated and verified to be correctly reported by the laboratory.**

CONTINUED

QUALIFIED DATA CONTINUED

Qualifiers

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. A minus sign (-) indicates the numerical value has a low bias. A plus sign (+) indicates the numerical value has a high bias.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified. Rejected results are not usable for any purpose.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

DataVal Reason Codes

001 Exceeded holding time.
002 Blank contamination.
003 Associated initial calibration showed elevated %RSD for compound.
004 Correlation coefficient < 0.995.
005 Average relative response factor < 0.05.
006 Associated continuing calibration showed elevated %D for compound.
007 Relative response factor < 0.05.
008 Surrogate recovery was outside limits.
009 Laboratory control sample recovery exceeded acceptance criteria.
010 Matrix spike recovery exceeded acceptance criteria.
011 The area of the internal standard exceeded acceptance criteria.
012 Retention time exceeded criteria for this compound.
013 Mass spectrum did not match the reference spectrum.
014 Tentatively identified compound (TIC).
015 Value exceeded the linear range of the instrument and was not re-analyzed.
016 Compounds/components co-elute.
017 Results reported below the quantitation limit.
018 Laboratory duplicate relative percent differences (RPD) outside acceptance criteria.
019 Field duplicate RPD outside acceptance criteria.
020 Percent difference between columns exceeded 25%.
021 Laboratory control sample RPD outside acceptance criteria.
022 Matrix spike sample RPD outside acceptance criteria.
023 Serial dilution percent difference outside acceptance criteria.
024 Retention time exceeded established window.
025 ICP Interference Check Sample had percent recoveries outside the 80%-120% criteria.
026 CRI/CRA (detection limit standard) failed acceptance criteria.
100 Other.

DataVal, Inc.

TPO: [ ]FYI [X]Attention [ ]Action Region 9

ORGANIC REGIONAL DATA ASSESSMENT

CASE NO. R06S31 LABORATORY USEPA Region 9 Laboratory

SDG NO. 06069D and 06075B SITE NAME Omega Chemical OU-2 March 2006 Sampling

SOW N/A REVIEW COMPLETION DATE 10/2/06

REVIEWER'S NAME Lisa Norosky/Agnieszka Jankowski, DataVal, Inc.

NO. OF SAMPLES 23 WATER ___ SOIL ___ OTHER

		VOCs	1,4-Dioxane
1.	HOLDING TIMES/PRESERVATION	O	O
2.	GC-MS TUNE/GC PERFORMANCE	O	O
3.	INITIAL CALIBRATIONS	X	O
4.	CONTINUING CALIBRATIONS	O	O
5.	FIELD QC	X	O
6.	LABORATORY BLANKS	O	O
7.	SURROGATES	O	O
8.	MATRIX SPIKE/DUPLICATES	X	O
9.	LCS/DUPLICATES	O	O
10.	INTERNAL STANDARDS	O	O
11.	COMPOUND IDENTIFICATION	O	O
12.	COMPOUND QUANTITATION	O	O
13.	SYSTEM PERFORMANCE	O	O
14.	OVERALL ASSESSMENT	X	O

O = Data have no problems or problems that do not affect data quality.
X = Data are qualified due to minor problems.
M = Data are qualified due to major problems.
Z = Data are unacceptable.
N/A = Not Applicable

TPO ACTION:

None.

TPO ATTENTION:

Two results are estimated (J) due to calibration problems.

AREAS OF CONCERN:

None.